

UNITED STATES BANKRUPTCY COURT
DISTRICT OF DELAWARE

IN RE: . Case No. 01-1139 (JKF)
. .
W.R. GRACE & CO., .
et al., . USX Tower - 54th Floor
. 600 Grant Street
. Pittsburgh, PA 15219
Debtors. .
. March 24, 2008
. 1:45 p.m.

TRANSCRIPT OF TRIAL
BEFORE HONORABLE JUDITH K. FITZGERALD
UNITED STATES BANKRUPTCY COURT JUDGE

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Proceedings recorded by electronic sound recording, transcript
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INDEX

<u>WITNESS</u>	<u>PAGE</u>
PETER LEES	
Direct Examination by Mr. McMillan	11
Cross Examination by Mr. Wehner	84
Cross Examination by Mr. Rasmussen	127
Redirect Examination by Mr. McMillan	177
Recross Examination by Mr. Rasmussen	185

<u>EXHIBITS</u>	<u>I.D.</u>	<u>EVD.</u>
GX-002 Job Exposure Matrix	--	75
GX-003 Job Exposure Matrix	--	75
GX-004 Job Exposure Matrix	--	75
GX-005 Job Exposure Matrix	--	75
Claimants 3005 Embarcadero study	134	--

1 THE COURT: Please be seated. This is the
2 continuation of the personal asbestos injury estimation trial
3 in the W.R. Grace matter 01-1139. The participants I have
4 listed by phone are Scott Baena, Alan Madian, Matthew Kramer,
5 Martin Dies, Robert Horkovich, Ari Berman, Shayne Spencer,
6 Lewis Kruger, Robert Guttman, Alex Mueller, Leslie Kelleher,
7 Peter Lockwood, Bernard Bailor, Mark Hurford, Walter Slocombe,
8 Elihu Inselbuch, Matthew Russell, Theodore Tacconelli, Guy
9 Baron, Christina Kang, Michael Lastowski, Janet Baer, Katharine
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12 Chan, Seth Brumby, Andrew Craig, Christina Skubic, Jeremy
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14 Corcoran, Terence Edwards, Daniel Speights, Jay Sakalo, Debra
15 Felder, James Wehner, Beau Harbour, Jeanna Rickards, Michael
16 Davis, Francis Monaco, James Rieger, Catherine Chen, Andrew
17 Hain, Matthew Daiker, Darrell Scott, Edward Westbrook,
18 Elizabeth Devine, Michael Scott, David Parsons, Natalie Ramsey,
19 and John Ku. And I'll take entries in court, please. Good
20 afternoon.

21 MR. McMILLAN: Scott McMillan on behalf of Grace.

22 MR. BERNICK: David Bernick for Grace.

23 MS. HARDING: Barbara Harding for Grace.

24 THE COURT: I'm sorry?

25 MS. HARDING: Barbara Harding.

1 MR. WEHNER: James Wehner for the ACC.

2 MR. FINCH: Nathan Finch for the ACC, Your Honor.

3 MR. INSELBUCH: Elihu Inselbuch for the ACC.

4 MR. MULLADY: Raymond Mullady for the FCR.

5 MR. RASMUSSEN: And Garret Rasmussen for the FCR.

6 MS. KRIEGER: Arlene Krieger on behalf of the

7 Official Committee of Unsecured Creditors.

8 MR. HOROWITZ: Gregory Horowitz on behalf of the

9 Official Equity Committee.

10 MR. FRANKEL: Afternoon, Your Honor. Roger Frankel
11 on behalf of the FCR.

12 MR. VAN GRACK: Adam Van Grack, Your Honor, on behalf
13 of the ACC.

14 MR. SLOCOMBE: Walter Slocombe, Your Honor, on behalf
15 of the ACC.

16 MR. BAILOR: Bernard Bailor, Your Honor, on behalf of
17 the ACC.

18 MR. KIM: Anthony Kim on behalf of the FCR.

19 MS. WEISS: Ann E. Weiss on behalf of the FCR.

20 MR. PITTS: John Pitts on behalf of the FCR.

21 MR. ANSBRO: John Ansbro for the FCR.

22 THE COURT: Mr. Bernick.

23 MR. BERNICK: Mr. McMillan's --

24 THE COURT: Mr. McMillan.

25 MR. BERNICK: -- going to be handling the examination

Lees - Direct/McMillan

11

1 this afternoon.

2 MR. McMILLAN: Your Honor, we would like to call
3 Peter Lees to the stand.

4 THE CLERK: Please raise your right hand.

5 PETER LEES, DEBTORS' WITNESS, SWORN

6 THE CLERK: Make sure you speak into the microphone.

7 DIRECT EXAMINATION

8 BY MR. McMILLAN:

9 Q Dr. Lees, can you please state your name for the record?

10 A Yes, my name is Peter Lees. That's spelled L-e-e-s.

11 Q Dr. Lees, what is your occupation?

12 A I am a Professor of Environmental Health Sciences at the
13 Johns Hopkins University, Bloomberg School of Public Health, in
14 Baltimore, Maryland.

15 Q In broad terms what have you been asked to testify about
16 today?

17 A I've been asked to summarize my study of retrospective
18 exposure assessment of persons who worked with Grace products
19 and what their potential exposures were.

20 Q Have you prepared any graphics in anticipation of
21 testifying today?

22 A Yes, I have.

23 Q Would it assist you in your presentation today to use
24 those graphics?

25 A Yes.

Lees - Direct/McMillan

12

1 MR. McMILLAN: Could I see GG-2193, please?

2 Q Dr. Lees, could you please tell us about your educational
3 background?

4 UNIDENTIFIED ATTORNEY: Scott, are we going to get a
5 copy of the graphics?

6 MR. McMILLAN: They should be in the binder.

7 UNIDENTIFIED ATTORNEY: In the binder? Okay.

8 UNIDENTIFIED SPEAKER: Ask him to raise his voice.

9 A Okay. I'm sorry. Could you repeat the question?

10 Q Sure. Could you please tell us about your educational
11 background?

12 A Okay. Sure. I have a Bachelors of Science in biology
13 from the College of William and Mary in 1972, and then in 1986
14 I received a PhD, a doctorate, in environmental health
15 sciences, in particular industrial hygiene, from the Johns
16 Hopkins University.

17 Q After you --

18 UNIDENTIFIED ATTORNEY: Excuse me, Scott. Excuse me,
19 Your Honor. Could you ask the witness to raise his voice?
20 We're having a hard time hearing.

21 THE WITNESS: Okay. I'm sorry.

22 MR. McMILLAN: Can you --

23 THE CLERK: I can't turn it up.

24 THE WITNESS: I'll -- I'll move a --

25 MR. McMILLAN: Can you pull it towards you a little

Lees - Direct/McMillan

13

1 more?

2 THE WITNESS: It's one of these battles that I have
3 to be close to the microphone, but I can't read the screen.

4 (Laughter)

5 MR. BERNICK: They would prefer that you not be able
6 to.

7 (Laughter)

8 THE WITNESS: Okay. I'll try to speak up.

9 BY MR. McMILLAN:

10 Q Dr. Lees, after you've received your undergraduate degree,
11 where did you go to work?

12 A Okay. Upon graduation from William and Mary I went to
13 work for an environmental consulting firm in Boston,
14 Massachusetts.

15 Q And what did you do there?

16 A I was their first hire in a new division or department
17 that investigated or worked with industrial hygiene problems
18 and air pollution problems. Remember, this is 1972 right after
19 OSHA and EPA came into existence.

20 Q And how long did you work there?

21 A For a little bit more than five years.

22 Q At that point did you decide to go back to graduate
23 school?

24 A Yes. Yes.

25 Q Why did you make that decision?

Lees - Direct/McMillan

14

1 A Well, with a Bachelors Degree in biology I essentially
2 learned industrial hygiene on the job at this consulting
3 company, and I reached a point in my career where I was being
4 called upon to make decisions that I really didn't think that I
5 had the basis -- the scientific basis to make a good decision.
6 So at that point I decided to go back to school to essentially
7 figure out what I was doing.

8 Q And when you went back to school to receive your PhD, what
9 was your PhD in?

10 A Well, actually, I originally went back to school to get a
11 masters degree but rapidly transitioned into the doctoral
12 program, and I received that degree, and that was in
13 environmental health sciences with a specialization in
14 industrial hygiene.

15 Q What was your PhD thesis about?

16 A It had to do with an elucidation of the factors that
17 determined exposure to PCBs in a group of workers who were
18 repairing transformers.

19 Q And for how long of a period have you been a practicing
20 industrial hygienist?

21 A Well, I've been practicing since 1972 really at --
22 obviously at different degrees of expertise.

23 Q Let's talk about a couple of the positions that you've
24 held. First of all, could you tell us what position you held
25 for the State of Maryland?

Lees - Direct/McMillan

15

1 A Okay. I was the Executive Assistant Commissioner of the
2 Maryland Occupational Safety and Health Program, which is the
3 state OSHA program.

4 Q What did you do in that role?

5 A As Executive Assistant Commissioner, I was primarily
6 responsible for upgrading the technical and scientific
7 abilities of the industrial hygiene inspector's staff to assure
8 the high quality inspections.

9 Q Okay. What is your current position at Johns Hopkins?

10 A I -- as I stated, I'm Professor of Environmental Health
11 Sciences at the School of Public Health.

12 Q Have you been on the faculty since you got your PhD at
13 Hopkins?

14 A Since January 1, 1986, yes.

15 Q Do you have current teaching responsibilities at Hopkins?

16 A I do.

17 MR. McMILLAN: Could we see GG-2194?

18 A Okay.

19 Q In which school do you teach?

20 A It's in the School of Public Health.

21 Q And in terms of schools of public health in the United
22 States, is Hopkins one of the more respected schools?

23 A You're probably asking a biased person, but yes, it's the
24 largest, the oldest. It's been ranked number one by U.S. News
25 and World Report since they started ranking schools of public

Lees - Direct/McMillan

16

1 health.

2 Q What are the courses that you teach at Hopkins?

3 A Well, actually, coincidentally, today is the first day of
4 the fourth term, and this morning I was supposed to teach
5 occupational health, but --

6 Q You had other invitations.

7 A -- I'm sure my students send their thanks. But I teach
8 occupational health. I teach a course entitled Principles of
9 Industrial Hygiene, another one, Industrial Hygiene Laboratory.
10 These are all under the Department of Environmental Health
11 Sciences. And in addition I teach in -- two courses in the
12 Department of Epidemiology, one course entitled Occupational
13 Epidemiology and the other one Environmental Epidemiology.

14 Q Now in the course of teaching your students, do you teach
15 them how to conduct exposure assessments?

16 A You know, I think it's fair to say that as a part of every
17 one of those courses that I just named there is -- in one
18 aspect or another there is an aspect of exposure assessment,
19 yes.

20 Q What about how to use industrial hygiene data for
21 epidemiologic studies, is that something that you are teaching
22 students?

23 THE COURT: Wait. I'm sorry. Can you hold on just
24 one second, please?

25 (Pause)

Lees - Direct/McMillan

17

1 THE COURT: I apologize. Could you repeat that for
2 me, please, your last question?

3 MR. McMILLAN: The one that he answered, or the one I
4 was just starting?

5 THE COURT: The one you were just starting?

6 BY MR. McMILLAN:

7 Q Do you teach your students how to use industrial hygiene
8 data in the course of conducting epidemiologic studies?

9 A Yes, that's my primary role in these two courses in the
10 Department of Epidemiology.

11 Q Besides teaching students, what other responsibilities do
12 you have at Hopkins?

13 A Well, I advise students, both doctoral and -- masters and
14 doctoral students. I perform research and, of course, any
15 academic institution, I serve on numerous committees.

16 Q Now, the courses that you listed here a minute ago, are
17 you teaching undergraduate or graduate students in those
18 courses?

19 A These are all graduate level courses. I teach masters
20 students, doctoral students, and, in addition, physicians who
21 are in their occupational medicine residency programs.

22 MR. McMILLAN: Could we see GG-2195?

23 Q Dr. Lees, are you a certified industrial hygienist?

24 A Yes, I am.

25 Q What does that mean?

Lees - Direct/McMillan

18

1 A Well, the certification -- CIH, certified industrial
2 hygienist, is a designation conferred by a professional
3 accrediting body, and it basically means that I have fulfilled
4 certain educational requirements, experience requirements, and
5 have passed a written test.

6 Q What is the board or body that certifies industrial
7 hygienists?

8 A It's the American Board of Industrial Hygiene oversees
9 this entire process.

10 Q Have you been a member of the American Board of Industrial
11 Hygiene?

12 A Actually, just two weeks ago I came off a five-year term
13 on the Board.

14 Q How many members are there of the Board?

15 A Just 12.

16 Q How did you come to become a member of the Board?

17 A I was nominated by another organization, the American
18 Conference of Governmental Industrial Hygienists, and then
19 through an election process I became a member of the Board.

20 Q Are there other professional organizations of which you
21 are a member?

22 A Sure. There are numerous ones, and they're listed in this
23 graphic. I can read them if you wish.

24 Q Well, why don't you tell me, are there any of those
25 organizations on which you have served on committees or in a

Lees - Direct/McMillan

19

1 leadership role?

2 A Okay. Well, the American Board of Industrial Hygiene,
3 obviously, you know, on the Board is a leadership role. The
4 American Industrial Hygiene Association, for many years I've
5 been a member of the Occupational Epidemiology Committee, and
6 in addition, I've recently been named the -- let's see if I can
7 get this right, it's so new -- the Chair of the Scientific
8 Committee on Industrial Hygiene of the International Commission
9 on Occupational Health. And then in these -- most of these
10 other organizations I have served as a peer reviewer for their
11 respective journals.

12 Q Does a portion of your professional work for these
13 organizations relate to exposure assessments?

14 A I think it would be fair to say for -- with the exception
15 of the American Board of Industrial Hygiene, which is really an
16 administrative sort of position, in one way or another exposure
17 assessment is a part of all of these activities, yes.

18 Q Does a portion of your professional work for these
19 organizations relate to the appropriate use of industrial
20 hygiene data in epidemiologic studies?

21 A Well, certainly, the Occupational Epidemiology Committee
22 of the American Industrial Hygiene Association, yes. In
23 addition, the ICOH, the International Commission on
24 Occupational Health. We work -- my committee works very
25 closely with another committee that focuses on occupational

Lees - Direct/McMillan

20

1 epidemiology.

2 MR. McMILLAN: Could we see GG-2196?

3 Q In your work as an industrial hygienist have you also
4 engaged in research?

5 A Certainly, that's a major activity at Johns Hopkins.

6 Q Has your research related in part to exposure assessments?

7 A It's probably fair to say that 95 plus percent of all my
8 professional activities relate in one way or another to
9 exposure assessment.

10 Q Have you written articles that have been published in the
11 peer reviewed literature relating to exposure assessments?

12 A Sure, yes.

13 Q Approximately how many exposure assessments have you
14 published?

15 A In the peer-reviewed literature and other reports it's
16 probably in excess of 100 at this point.

17 Q For what substances have you published exposure
18 assessments?

19 A Well, it's many, many substances; asbestos, manmade
20 mineral fibers, certain metals, in particular lead, solvents,
21 styrene, PCBs, which -- chromium. Those are the ones that come
22 to mind.

23 Q Have you ever been asked to perform an exposure assessment
24 for the U.S. Government?

25 A Yes, I have.

Lees - Direct/McMillan

21

1 Q What did you do?

2 Q I was asked by the U.S. Environmental Protection Agency as
3 a part of their ruminations, if you will, on revising their
4 chromium standards to conduct a retrospective exposure
5 assessment of a group of workers who were exposed to hexavalent
6 chromium, and this exposure assessment fed into a -- or it was
7 a part of a larger epidemiologic study to assess risk. That
8 study was ultimately used as one of the studies used by OSHA in
9 their revised exposure standard for chromium which was issued
10 2004-ish.

11 Q Have you recently been asked to look at that again or to
12 update the work you did previously?

13 A That study was completed. It was published in I believe
14 2000, and I currently have a contract with EPA to update that
15 study.

16 Q Within the field of industrial hygiene, do you have an
17 area in which you would say that you have specialized?

18 A Oh, yeah, I specialize in exposure assessment and in
19 particular retrospective exposure assessment as a part of
20 epidemiologic studies.

21 MR. McMILLAN: Could we see GG-2197, please?

22 Q Have you done any exposure assessments or exposure work
23 that is specifically related to asbestos?

24 A Yes.

25 Q Could you tell us about that?

Lees - Direct/McMillan

22

1 A Okay. Well, actually, it starts from my -- some of my
2 earliest days at the consulting company in Boston in which I
3 did surveys in various workplaces that manufactured products
4 that had an asbestos component. One I can think of most
5 prominently was a vinyl asbestos tile manufacturing facility.
6 So I did a number of those in the early and mid-1970s.

7 When I went to Hopkins, I became involved in exposure
8 assessment related to asbestos in building materials. And
9 let's see, what else? I've done some work for several
10 utilities related to the removal of asbestos-containing pipe
11 wrap from gas pipes. Actually, as a part of these proceedings
12 here, I conducted an exposure assessment of -- for people
13 working with vermiculite attic insulation that was completed in
14 2002/2003 and submitted to this Court.

15 Q Had you had any teaching responsibilities relating to
16 asbestos?

17 A Well, you know, as a part of Principles of Industrial
18 Hygiene course, as a part of the Industrial Hygiene Laboratory
19 course, you know, asbestos is a part of that teaching. In
20 addition, I have -- I taught for probably eight or ten years at
21 the OSHA Training Institute in Chicago. This is the training
22 institute -- the school that OSHA runs to teach new inspectors
23 how to do their job. I work with the laborers union on
24 asbestos training. A number of things, yes.

25 Q Have you worked on any asbestos abatement projects?

Lees - Direct/McMillan

23

1 A I have. Again, this was part of my -- during my doctorate
2 work I actually also worked for Johns Hopkins University in a
3 research capacity, and we had a contract with the U.S. General
4 Services Administration for the national capital region, so
5 this is the government's landlord for basically inside the
6 beltway in Washington, D.C. And the -- and this is in the
7 early 1980s when EPA came out with their new regulations for
8 asbestos removal, and we helped, assisted, guided them in
9 getting up to speed, if you will, with those regulations, and
10 as a part of that, you know, I had worked hands on designing
11 and overseeing several -- a couple asbestos removals from
12 government buildings.

13 Q In the course of your work with asbestos exposure
14 assessments or abatement work have you personally been involved
15 in sampling for asbestos?

16 A I have collected who knows how many thousand samples as a
17 part of this effort, yes.

18 MR. McMILLAN: Your Honor, I would move to qualify
19 Dr. Lees as an expert in the field of industrial hygiene.

20 MR. RASMUSSEN: No objection, Your Honor.

21 UNIDENTIFIED ATTORNEY: No objection.

22 THE COURT: All right. He's qualified to express an
23 expert opinion in the field of industrial hygiene.

24 MR. McMILLAN: Could we see GG-2198, please?

25 DIRECT EXAMINATION

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24

1 BY MR. McMILLAN:

2 Q Dr. Lees, could you tell us what is industrial hygiene?

3 A Okay. Industrial hygiene is the science that seeks to
4 understand and quantify exposures of workers to toxic or
5 potentially toxic substances, and then depending upon what the
6 findings are of that evaluation, if appropriate, to recommend
7 design or implement some kind of a control to reduce exposure.
8 And the overall purpose of the field of the science is to
9 reduce or eliminate occupational disease through control of
10 occupational exposures.

11 Q Is the identification and evaluation of the exposures one
12 of the core functions of the industrial hygienist?

13 A Yes, I would -- in my evaluation that is the heart of
14 industrial hygiene.

15 MR. McMILLAN: Could we see GG-2199?

16 Q Dr. Lees, can you tell us when the field of industrial
17 hygiene first came into being?

18 A Well, it certainly -- it has its roots in ancient Greece
19 where people who -- miners who worked in dusty environments, in
20 particular, people who worked in lead mines, became ill, and
21 some bright guy made the association between exposure to the
22 dust and their illness, and at that time they devised -- you
23 know, it was not much more than a rag over your face, but it
24 was a crude respirator to reduce exposure. But, you know, the
25 real science having to do with exposure and occupational

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25

1 disease developed in 18th century Europe where there was, you
2 know, a more rigorous scientific approach to this field, and as
3 a part of that was clearly establishing the relationships
4 between exposure and occupational diseases.

5 Q When did the U.S. government begin to utilize or study
6 industrial hygiene principles?

7 A Okay. Well, the whole field of occupational health, and,
8 in particular, industrial hygiene, was a little slow getting
9 off the ground in this country, and it was in the early part of
10 the 20th century -- excuse me. In the early part of the 20th
11 century the U.S. Bureau of Mines was founded, and one of the
12 reasons it was founded was to reduce or eliminate safety and
13 health problems associated with mining. And also a couple
14 years later, in 1914, the U.S. Public Health Service founded or
15 began their Office of Industrial Hygiene to examine
16 occupational diseases resulting from exposures in industry.

17 Q When did the U.S. government begin to start regulating
18 mines and industry using industrial hygiene principles?

19 A Okay. These two organizations that I just talked about
20 were really research and advisory. They had a research and
21 advisory role. The regulatory part of the occupational
22 industrial hygiene field began for the mine -- for mines in
23 1968 with the formation of the Mine Safety and Health
24 Administration, and then in 1970 when OSHA, the Occupational
25 Safety and Health Administration, was formed.

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26

1 Q And do MSHA and OSHA employ industrial hygiene principles
2 in setting regulations for the workplace?

3 A Oh, yes, absolutely.

4 Q Now, I think you mentioned earlier that evaluating a
5 worker's exposure is an important part of being an industrial
6 hygienist. Right?

7 A Yes, it's an essential tool. It's a core tool of the
8 profession.

9 MR. McMILLAN: Could we see GG-2200?

10 Q Could you briefly tell us how an industrial hygienist
11 measures a worker's exposure or how you would go about doing
12 that?

13 A Okay. Well, this is actually the subject of several
14 lectures I give in the Principles of Industrial Hygiene course,
15 but I'll give you the much abbreviated version. The process
16 begins with a definition of the question that you're asking and
17 then devising an appropriate what we call sampling strategy to
18 answer that question. And by sampling strategy, I mean who are
19 we going to sample, when are we going to sample, what in terms
20 of substances are we going to sample, when. I think I might
21 have already said that. So the who, what, when, where kinds of
22 questions define the strategy.

23 The next step is the actual collection of a physical
24 air sample using an air pump that draws air through a
25 collection device that separates the contaminant from the air.

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27

1 The -- in the case of asbestos fiber, that collection --
2 asbestos exposure, that device is a -- essentially a filter
3 paper which is then taken to the laboratory and analyzed under
4 a microscope. The results of the analysis are then used to
5 calculate a concentration -- an air concentration of asbestos
6 fibers, and that number or those numbers or that data are
7 evaluated, and based on that data, some decision is made. We
8 have a problem, we don't have a problem, and then maybe
9 recommendations, we need to institute controls, would be
10 instituted.

11 Q That's what we want to talk about Dr. Lees. If we
12 could look at GG-2201. What are the various reasons why you
13 would be devising your sampling plan or why you would be going
14 out and obtaining or constructing the industrial hygiene data?

15 A Well, as I maybe intimated, there are many, many different
16 reasons that one would collect an air sample to estimate the
17 concentration of a contaminant in the air. Probably the
18 primary one in this country at this time is to determine
19 compliance with OSHA standards which specify that you can't be
20 exposed -- workers can't be exposed above a certain
21 concentration. But in addition, air sampling would be used,
22 for instance, to specify the appropriate type of personal
23 protective equipment; that is, the different types of
24 respirators are required according to the concentration of the
25 contaminate. Air sampling could be used to specify what sort

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28

1 of a ventilation system would be required. In addition,
2 industrial hygiene data are used as a part of exposure
3 construction or reconstruction for epidemiologic studies or for
4 risk assessment studies.

5 Q Now, Dr. Lees, the purpose for which you are going to be
6 using the industrial hygiene data, does that affect how you
7 design your sampling strategy and how you report the industrial
8 hygiene data?

9 A It affects both, yes.

10 MR. McMILLAN: Could we see GG-2202, please?

11 Q Could you explain to us how the purpose of an industrial
12 hygiene study affects how you report the data for that study?

13 A Well, that's probably easily -- I'll try that one again --
14 most easily described through a couple of examples. For
15 instance, if the question is are these workers in compliance
16 with a OSHA standard, I design my strategy to measure the
17 exposure of what I think is the most highly exposed worker or
18 workers, and then my determination of compliance or not is
19 based on the highest, the maximum value. Okay? Whereas, on
20 the other hand, for an epidemiologic study it's not the maximum
21 value, but it's the average value of -- for the exposure is the
22 appropriate input to a epidemiologic study. So the different
23 reasons have different ways of reporting the data.

24 Q You said a moment ago that for an epidemiologic study what
25 you report is the average exposure. Can you explain why for an

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29

1 epidemiologic study you would be reporting the average?

2 A And when I say epidemiologic study, I mean epidemiologic
3 studies of chronic diseases. Okay? And the reason that we use
4 the average is, because the input to an epidemiologic study of
5 chronic diseases is the cumulative exposure, which is the
6 average concentration -- air concentration times the frequency
7 that the person was exposed to that concentration times the
8 duration, how many days or years or months or years the person
9 was exposed.

10 Q And is it appropriate when you're looking at exposures
11 over the long term to use the average?

12 A Yes. Yes. Worker exposures vary. One day they're high.
13 One day they're low. But over time the highs and the lows
14 balance each other out, and so they will center about in the
15 long term some average exposure, and it's that value that is --
16 goes forward into the calculation of cumulative exposure.

17 Q Now, when you report your exposures for an epidemiologic
18 study, do you typically report things like the confidence
19 interval or the standard deviation along with the average that
20 you're reporting?

21 A No, that wouldn't be necessary as only the average
22 concentration is what would go forward into this calculation of
23 cumulative exposure.

24 Q Dr. Lees, I want to talk a little bit about -- you
25 mentioned a minute ago variability in exposures, and I want to

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30

1 focus on that for a minute.

2 MR. McMILLAN: Can I see GG-2203, please?

3 Q Dr. Lees, this is an excerpt from an article by Dr. Irving
4 Selikoff, and I just want to ask you to comment on what he's
5 saying here. Dr. Selikoff says that, "The different
6 occupations vary widely in important respects in intimacy,
7 intensity, and duration of exposure, in variety and grade of
8 asbestos used, in working conditions, in concomitant exposure
9 to other dusts or inhalants." Can you explain what Selikoff is
10 describing here?

11 A Yes, well, what he's saying is that essentially all
12 asbestos exposures -- there is no such thing as asbestos
13 exposure, period. And, in fact, they're depending on industry,
14 on job, on products used. There is -- you can't paint exposure
15 with one broad brush. All of these different considerations go
16 into ending up with different exposures for different people,
17 if you will.

18 Q So as an industrial hygienist, when you are asked to
19 characterize exposures or to categorize exposures, what does
20 that mean you have to do?

21 A Well, you have to specify as narrowly or as closely as
22 possible all of the considerations, the variables, if you will,
23 that affect exposure.

24 MR. McMILLAN: Can we look at GG-2204?

25 Q Can you tell us -- you said you have to look at all the

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31

1 factors -- can you tell us what the key factors that you
2 consider when you are doing an individual asbestos exposure
3 assessment?

4 A Okay. Well, starting -- you know, starting from the
5 100,000 foot level, very broadly, there were thousands of uses
6 of asbestos in the last century, and -- but it -- so in order
7 to narrow this down from all asbestos exposures, the next step
8 would be to look at what industry -- determine what industry
9 we're talking about, because different industries describe
10 different sorts of exposures. Then within an industry further
11 narrowing down to a job title, because within an industry
12 different people do different things, and they have different
13 exposures, and then narrowing down further beyond that. And
14 this is particularly true of the construction industry. Even
15 people with the same job title may work with different
16 materials that have different asbestos exposures associated
17 with them, so we narrow down.

18 Q Okay. Well, I think the first one you mentioned is
19 industry. I want to talk about that one first.

20 MR. McMILLAN: If you could show GG-2205?

21 Q Dr. Lees, can you explain to us what this graph shows?

22 A Yes, these are data. The warm-colored bars to the right
23 of the slide are taken from EPA's 1986 asbestos risk
24 assessment, and what they do is they present average exposures
25 for four different industries there. So you can see that in

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32

1 the -- for cement factory workers the average exposure was five
2 fibers per cubic centimeter, whereas, for amosite factory
3 workers it was a factor of four higher, and the average
4 exposure was 35 fibers per cubic centimeter.

5 Q Now, are these industry-wide average exposures?

6 A Yes.

7 Q I see on the left a blue and a green column that refer to
8 Nicholson's Construction Traits. Where do the Nicholson
9 numbers come from?

10 A These numbers come from Nichols -- William Nicholson's
11 1982 paper in which he estimated or predicted or calculated
12 future disease from asbestos exposure, and these are the
13 exposures -- the construction industry exposures that he
14 presents in that paper.

15 Q Now, for the majority of the W.R. Grace products that
16 contained added chrysotile asbestos, what industry category
17 would they fit into?

18 A They were within the construction industry category.

19 Q And with the information that you've presented here, which
20 is an industry-wide average, is that enough information to
21 predict any individual worker's exposure?

22 A Again, no.

23 Q Why not?

24 A Well, within a broad industry category, as I said, there
25 are many different jobs, many different tasks that have

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33

1 different exposures associated with them.

2 MR. McMILLAN: Well, let's talk about the jobs next.

3 Can we see GG-2206, please?

4 Q Now, you see this is an excerpt of a study by Corbett
5 McDonald in 1983. Do you recognize this, Dr. Lees?

6 A Yes.

7 Q Could you tell us what he was studying in this study?

8 A This was health risks associated with exposure to asbestos
9 in the textile industries was the subject of the study.

10 Q And did McDonald break down his exposure analysis by the
11 jobs that existed within this textile factory?

12 A Yes. Yes, rather than assign one exposure level for the
13 entire industry, he broke it down. Actually, it was by -- as
14 you see on the left-hand side of the table is by departments,
15 and departments are groups of similar jobs -- and assigned
16 different exposures to these different groups of jobs.

17 Q And when you look at the individual jobs within this
18 textile industry study, do you see difference?

19 A Well, there are differences that are, you know -- well,
20 just looking at this, there's a factor of maybe 10 or 20 from
21 the highest to the lowest exposed job.

22 Q Now, for each department or job that Dr. McDonald is
23 presenting, how does he present the exposure data?

24 A Well, the -- it says it in the title there. It says,
25 "Estimated Average Prevailing Dust Concentrations."

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34

1 Q Does Dr. McDonald prevent -- present any variability,
2 standard deviation, or confidence interval for the exposure
3 numbers?

4 A No.

5 Q Is that standard?

6 A Yes.

7 Q Okay. I think you said that -- you had talked about the
8 industry, the job, and then the product, and the use of the
9 product.

10 A That's correct.

11 MR. McMILLAN: Can we look at GG-2207? I want to
12 talk now about the product.

13 Q Now, for spray fireproofing are there different types of
14 products that might be used?

15 A Yes, for spray fireproofing there are two major types or
16 categories of spray fireproofing; a wet type and a dry type.

17 Q Do those two types have different compositions?

18 A There's a difference in composition in terms of the
19 asbestos content, yes.

20 Q Are they used or applied in different ways?

21 A The application methods are very different, yes.

22 Q Now, what you can see on GG-2207 is an excerpt from an
23 article by Dr. Reitze. Are you familiar with this article?

24 A Yes, I am.

25 Q And what is Dr. Reitze explaining in the part we have

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35

1 excerpted here?

2 A Well, in the excerpt he briefly and succinctly describes
3 the difference between the way in which the dry fireproofing
4 and the wet fireproofing are installed in a building, if you
5 will.

6 Q Can you explain that to us?

7 A I'll try to be as brief. Basically, the dry type
8 insulation -- I'll try this again. The dry type installation
9 of fireproofing involves the mixing of the asbestos fibers and
10 the binders which could be -- they're basically plasters or
11 cements. They're mixed dry and then conveyed under air -- high
12 air pressure through a hose to the site of application. The
13 dry material emerges from the hose under this high air
14 pressure, is blown out, and simultaneously there's a spray of
15 water that is sprayed into this dry dust cloud. The mixing,
16 such as it is, occurs there, and the wet -- the wetted material
17 would stick to the steel or the ceiling or whatever.

18 On the other hand, the -- in the wet application
19 method the asbestos-containing materials and the binders are
20 mixed with water in what is a cement mixer or a small hand
21 cement mixer, and they are conveyed through the --- this hose
22 as a wet slurry. Okay. It's kind of a wet, goopy -- I forgot
23 the technical term -- cement-like material, and it comes out of
24 the hose, and -- as this wet material and sticks to the
25 ceiling.

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36

1 Q Are the exposures for people involved in spraying the dry
2 method compared to the wet method different?

3 A No, they're very different.

4 Q How so?

5 A Well, in the dry method this mixing at the nozzle is not a
6 very efficient process, so as a result, there are many, many
7 more free, dry fibers that are released to the air.

8 Q Now, in the Reitze article that is in GG-2207, do you have
9 an understanding of which method he was obtaining industrial
10 hygiene data on?

11 A Yes, the data that he report relate to the dry type.

12 MR. McMILLAN: Could I have the ELMO, please?

13 Q Dr. Lees, I'm showing you the cover page for a document
14 that's GX-388, which is a 1982 article by William Nicholson.
15 Are you familiar with this article?

16 A Yes, this is the study that I referred to several slides
17 ago.

18 Q The one with the blue and green columns on the chart?

19 A Yes. Yes.

20 Q I'd like to refer you to Page 265 of his article, and
21 you'll see here that he has a section called, "Construction,
22 Special Trade Contractors," and within that there's a
23 highlighted section in which he says, "An investigation of the
24 spraying of mineral fiber insulation material in New York City
25 collected on-site samples taken at various distances from the

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37

1 spraying nozzle. It showed fiber counts ranging from the 70
2 fibers per mil, 10 feet from the nozzle, to 3 fibers per mil,
3 25 feet away." And he has a cite there. What is his cite for
4 this data?

5 A It's the Reitze article.

6 Q So is it your understanding that when Nicholson was
7 describing the spray fireproofing exposures in his 1982 study,
8 he was citing to data taken of the dry method?

9 A Yes.

10 Q Now, what kind of spray fireproofing products did W.R.
11 Grace manufacture?

12 A The wet type.

13 Q As far as you understand, did they only produce spray
14 fireproofing products that used the wet method of application?

15 A Yes, that's my understanding.

16 MR. McMILLAN: Could I have the -- the other
17 graphics, please?

18 Q Now, Dr. Lees, we've talked about narrowing down from the
19 industry to the job to the specific product in use that's going
20 on, and once you -- say we're using Grace's spray fireproofing
21 with the wet method. Once you know that that is occurring at a
22 specific site, is everyone at that site going to have the same
23 exposure?

24 A No.

25 Q When you're attempting to evaluate exposures in that

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38

1 circumstance, what do you have to do as an industrial
2 hygienist?

3 A Well, I need to understand all of the people who would
4 interact in one way or another with this process of the
5 application of a spray fireproofing and, therefore, would be
6 exposed or potentially exposed.

7 Q And once you evaluated the various ways in which those
8 people were exposed, what would you try and do with them?

9 A You know, what we try to do is to group people into areas
10 or groups with similar exposures.

11 Q And is that what you attempted to do in this case with the
12 W.R. Grace data?

13 A Yes.

14 MR. McMILLAN: Show GG-2121.

15 UNIDENTIFIED SPEAKER: Which one was that Scott?

16 MR. McMILLAN: 2121.

17 Q Now, Dr. Lees, this is a slide that was shown in opening
18 about the overall flow of Grace's analysis of claims. Can you
19 tell us what part of this analysis you worked on?

20 A Okay. I was responsible for what is presented here as
21 essentially the two left-hand columns. In conducting my
22 historic exposure reconstruction, I essentially describe the
23 different products and conditions on which -- under which they
24 were used and from historic data assigned exposures to those
25 groups.

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39

1 Q So you were the one who came up with the occupational
2 settings into which you were going to group the exposure data?

3 A Yes.

4 Q And then you were the one who produced the eight-hour time
5 waited average for each of those occupational settings?

6 A Yes, I calculated those. Yes.

7 MR. McMILLAN: Okay. I'd like to go more
8 specifically into what you did. If we could look at GG-2208?

9 Q Dr. Lees, can you walk us through the steps that you used
10 to develop those occupational settings and to develop the
11 average exposures for those occupational settings?

12 A Okay. Very, very simply, it involved, first of all,
13 identifying all of the products that Grace made and
14 understanding and developing an understanding of how they were
15 used.

16 The second step was identifying groups of people who
17 worked with these products and what they did. And when I said
18 what they did, I mean how that might influence their exposure
19 to these products.

20 The third step was to gather all of the historical
21 exposure data for people working with these products and under
22 these different conditions. And then given the product, how
23 it's used, and exposure data, I combined them altogether and --
24 using a tool called a job exposure matrix, which in reality is
25 a way of concisely and clearly defining or assigning exposures

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40

1 by the variables that are important.

2 MR. McMILLAN: Let's start with Step 1 of your
3 analysis. If we could look at GG-2209?

4 Q How did you identify the Grace products that you were
5 going to be using in your exposure assessment?

6 A Okay. Well, I have to say that to start off with that in
7 the early/mid-nineties I worked with Grace and was familiar
8 with the fire -- the Monokote III fireproofing material. The
9 -- so I had some preexisting knowledge, and then certainly, I'd
10 done the work with the vermiculite attic insulation, so I knew
11 about that. But the first step in the investigation was really
12 to gather a list of all of the products that Grace had made
13 over the years that included these substances, and that list
14 has been produced many times as part of other, you know, legal
15 actions. And I believe it's even been published in the Federal
16 Register, so there was a starting list of over a hundred
17 individual products.

18 Q And once you had that as your starting point, what did you
19 do to double check it, to add to it, to fill in the blanks, do
20 that kind of thing?

21 A Okay. Well, that was the list. The next thing I did was
22 to examine all of the product literature and historic documents
23 that could be gathered to, first of all, understand how these
24 materials were used and, you know, reading between the lines,
25 see if there was anything that had been missed from these

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41

1 lists. In addition, I consulted depositions of former Grace
2 employees that talked about these products in some detail.

3 Q Now, once you had gathered all of the available product
4 information, what did you do with it?

5 A Well, the next step -- and again this is over a hundred
6 products -- was to group these products into logical groups.
7 And when I say logical, meaning that they had similar
8 concentrations or had -- were composed of similar materials.
9 Let's put it that way.

10 Q Let's look at GG-2210. In the left-hand column with the
11 green heading are those your product groupings?

12 A That's the -- yes, the product groupings.

13 Q And I see that the first one is labeled vermiculite. What
14 do you mean by the vermiculite product group?

15 A Well, these products were ones that, in addition to
16 binders and all this other stuff, contained only vermiculite as
17 a substance of interest, if you will.

18 Q Why did you think it was important to have a category of
19 products that just contained vermiculite but no other asbestos
20 products?

21 A Well, the vermiculite has the potential to be contaminated
22 with amphibole asbestos, so there's the possibility of an
23 asbestos exposure associated with just the use of a -- if you
24 will, a pure or an only vermiculite material.

25 Q And from your work on the vermiculite attic insulation do

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42

1 you have a sense of the level of the amphibole within
2 vermiculite?

3 A Yes, my knowledge of that is really just limited to the
4 samples that were collected and analyzed as a part of my study,
5 and my recollection is that we're talking usually less than one
6 percent. You know, tenths of percent typically.

7 Q Now, in the right-hand column you have it labeled, "Use
8 Subcategory." Can you explain to us what the use subcategories
9 are?

10 A Okay. Well, for a given product it could be used in
11 different ways that could result in different exposures, and
12 probably the simplest example of that would be sticking to that
13 vermiculite category used dry. This would include, among other
14 things, the installation of attic insulation in which you just
15 had a bag of vermiculite, and you dumped it out into an attic.
16 Whereas, there's this -- if you go down a couple, the category
17 mixed wet and sprayed, in this category vermiculite and some of
18 these cements and plasters were mixed with water in a cement
19 mixer and sprayed onto -- as a fireproofing onto steel beams.
20 Okay? So, clearly, one, you have -- you're dumping dry
21 materials in a confined space. The other one, you're spraying
22 a wet material in pretty much an open space, and they have
23 different levels of exposure associated with those two
24 different subcategories, if you will.

25 Q So was the purpose of creating use subcategories to try

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43

1 and group uses that you would expect to have similar exposures?

2 A Exactly right.

3 Q Now, once you had created your product categories and your
4 use subcategories, what was the next step? I think this was
5 going to be Step 2 in your analysis.

6 A Okay. Well, the next step is really to drill down to the
7 next level, because within each of these subcategories there
8 are different occupations that are involved in using these
9 substances, and they use them in different ways, and they may
10 have different exposures.

11 MR. McMILLAN: Okay. Can we see GG-2211?

12 Q So in order to determine different occupations or the
13 different ways in which people might come into contact with one
14 of those products in a use subcategory, what did you do?

15 A Okay. Well, I relied in part on historic documents, and
16 in particular, the Grace literature, their advertising
17 literature, and the literature that they provided to
18 contractors on how to install our product. That was basically
19 what they were -- were very useful in describing how people
20 interacted with the material. You know, also I mean, frankly,
21 in my youth I worked in the construction industry during
22 summers, and throughout my professional industrial hygiene
23 career repeatedly been on construction sites, so you know, I
24 have some knowledge of how construction happens, if you will.
25 And I also consulted the published literature.

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44

1 Q Did you attempt to use any of the PIQ responses, or did
2 you anticipate using the PIQ responses as a method of
3 determining how people might have interacted with the Grace
4 products?

5 A The hope that the onset of my work was that in the
6 response to the PIQ workers would identify a product and then
7 identify what their job title was and how they interacted with
8 the material, if you will.

9 Q What did you find out once the responses came in?

10 A The data were incomplete and, you know, not really very
11 useful, so I didn't use any PIQ responses in putting these
12 groupings together.

13 MR. McMILLAN: Can we see GG-2212, please?

14 Q Dr. Lees, on GG-2212 are these the different exposure
15 categories that you used?

16 A They are.

17 Q Can you tell us briefly what the different exposure
18 categories are?

19 A Okay. Well, they're listed from A through E, and these
20 are -- exposure categories involve people who mixed Grace
21 products, people who cut or removed Grace products, people who
22 applied Grace products, and the graphics shows spraying, but
23 there are other methods of application. And, in addition,
24 there were these two other categories, D and E, which were
25 people who didn't work directly with the Grace product, but

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45

1 were either in -- on the site where it was being used, in one
2 of these A, B, C's or in the workspace where active work was
3 going on.

4 Q How did you differentiate between the people D, who were
5 on the same site, and people E, who were in the same workspace?

6 A For my purposes I defined the workspace by the walls that
7 surrounded the workspace, and that's really kind of difficult
8 and arbitrary sometimes in a construction site, but, for
9 instance, for a spray application, it would be the floor which
10 was being sprayed, or if they had tarps up, you know, inside of
11 the tarps that confined that space. And then the D's would be
12 everything else.

13 Q Do your exposure categories A through E fairly encompass
14 the varying ways in which people could be exposed to Grace's
15 products?

16 A I believe that that is a good summary, yes.

17 Q Is the way in which you grouped workers or exposure groups
18 similar or typical to the way industrial hygienists normally
19 create exposure groups?

20 A I think that would be fair to say, yes.

21 Q Okay. Once you had the Grace -- you had the Grace
22 products categorized, you had the use subcategories, and you
23 had these different exposure groups within those use
24 subcategories, what was the next step in your analysis?

25 A Working our way across, the next step was to gather the --

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46

1 all the available exposure data.

2 MR. McMILLAN: Could we see GG-2214?

3 Q How did you gather the exposure information?

4 A Okay. Well, I -- as I said, I had worked for Grace in the
5 early nineties, mid-nineties, so I had some of the data related
6 to the spray-on fireproofing already in my possession, but I
7 asked -- I requested from counsel the -- all the available data
8 -- all the available data that they had in their files relating
9 to their measures of exposure. In addition, I looked at the
10 literature, the published literature for relevant exposure
11 information.

12 Q And in total how many studies were you able to locate that
13 contained Grace-specific exposure information?

14 A There were approximately 300.

15 Q And how many different data points on Grace-specific
16 exposures were contained in those studies?

17 A In the end there were approximately 2,000 useable data
18 points, exposure measurements contained in those reports.

19 Q Did you also gather any post-construction data points?

20 A Yes, these data came from the literature and encompassed
21 approximately 16 hundred individual measurements of exposure.

22 Q Okay. Once you had collected all of the available
23 exposure data on Grace's products, what did you do with that
24 data?

25 A Well, I did what you normally do with data. I -- you have

Lees - Direct/McMillan

47

1 to make some determination whether it's any good or not or
2 whether it's junk.

3 Q Okay, and how did you go about doing that?

4 A The standard procedure is to develop criteria by which you
5 evaluate data, and then you just work your way through the data
6 determining whether they -- each individual point conforms with
7 your A priority criteria or not.

8 MR. McMILLAN: Can we see GG-2215, please?

9 Q Are these the data reliability criteria that you developed
10 to analyze the Grace data?

11 A Yes.

12 Q Could you give us some examples of the type of reliability
13 criteria that you used?

14 A Okay. And, again, I should say at the outset that these
15 are really pretty standard data reliability criteria when it
16 comes to looking at and evaluating exposure data. But if you
17 look at the first maybe five bars there, really all relate to
18 did the study have sufficient identification in terms of who
19 did the work, when they did the work, and what work was going
20 on with what product. So that kind of -- that was the first
21 set of criteria.

22 Q I see about half way down you have a category called,
23 "Primary Data Collection Only." What did you mean by that?

24 A Within the studies that I received from Grace, there were
25 two types of studies. One was such as you saw in the previous

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48

1 slide, you know, field sheets where there's actual raw data
2 from the field. In addition, there were reports that were kind
3 of general and just summarized data, so it said that, you know,
4 the studies last week showed an average of X fibers per cc. It
5 gave me no information relative to -- you know, no details.
6 And I think for the most part these were duplicates or
7 summaries of the field sheets, but since there was not any
8 specific information or there was not sufficient specific
9 information, I prefer to use the specific information from the
10 primary data.

11 Q The last criteria you have up there is, "Data Followed
12 Accepted Expectations." What did you mean by that?

13 A Again, this would be -- probably you'd characterize it as
14 the common sense test, and it was rarely, very rarely invoked,
15 and at the moment the only example I can think of was a
16 situation where in an attempt to measure bystander exposures
17 they measured concentration, asbestos concentration upwind and
18 downwind of an operation. Okay? The upwind concentration as
19 reported was very, very much higher than the downwind
20 concentration. Now that doesn't make any sense. Okay. One
21 would expect the downwind concentration to be higher. So
22 either that means that they mislabeled the samples, or maybe it
23 means that somewhere else on the construction site there was
24 another source of fiber. So, you know, I really didn't know
25 how to evaluate that particular set of data, so I -- or that --

Lees - Direct/McMillan

49

1 those two data points, so I didn't use them in my analysis.

2 Q Do you have a sense of the overall proportion of the
3 studies that you had collected that match all of your data
4 reliability criteria?

5 A Okay. Well, of those 300 studies I ultimately used about
6 five -- 250 of them -- I'm sorry -- 250 them in my analyses,
7 and of the 50 that were eliminated, the vast majority of those
8 were, because they were summary data that really for the most
9 part duplicated the primary studies.

10 Q Okay. Once you had the 250 studies that passed your data
11 reliability criteria, what did you do with that data next?

12 A Well, again, it's similar to what I did in terms of
13 grouping jobs -- products and jobs. What the next step is to
14 group the exposure data in a similar way.

15 Q Okay. Can you explain to me what you mean by that?

16 A Well, for instance, what I would do would be to -- if you
17 had the vermiculite installed dry, which that would be people
18 who installed the vermiculite in attics. So I would gather all
19 of those data of people who were installing dry vermiculite in
20 attics and essentially put them all in one bucket. And so I
21 parsed all the data out into buckets of similar exposures.

22 Q So are you saying that for each of the product categories
23 you had used were their use subcategories and then the exposure
24 buckets within that? You transferred all the data into each of
25 those buckets?

Lees - Direct/McMillan

50

1 A Yes, that's -- I think that's what I said.

2 Q Sorry.

3 A That's what I tried to say.

4 MR. McMILLAN: Can we see GG-2216?

5 Q Once you had grouped the data by product and use, did you
6 have to put all the data in the same format or do anything else
7 to the data?

8 A Well, the individual data, okay, in order to make them
9 comparable and useful for further analysis, what I needed to do
10 for each of these individual samples was to calculate the
11 eight-hour time waited average exposure concentration.

12 Q Is calculating the eight-hour time waited average
13 something that's standard?

14 A Yes, it's the golden -- it's the standard within
15 industrial hygiene, yes.

16 Q What about for OSHA compliance? When OSHA demands that an
17 industry produce sampling data for compliance, how are they
18 required to be reported?

19 A It's on the basis of the eight-hour time waited average
20 concentration.

21 Q Now, once you've -- when you grouped the data I think you
22 said within each of these individual exposure buckets for each
23 kind of product and use, what did you do with the data in each
24 bucket?

25 A Okay, so in each bucket I have all of the relevant

Lees - Direct/McMillan

51

1 eight-hour time waited averages. I then averaged all of the
2 data in that bucket.

3 Q How did you average the data in each bucket?

4 A Well, I used two ways which I characterize as a
5 unstratified and a stratified method. And, quite simply, the
6 stratified method was one in which if there were 50 samples in
7 there, you just average all 50 individual samples. The
8 stratified method would be that I calculated -- if within these
9 50 samples there were 25 job sites, I calculated the average
10 for each job site, and then averaged the averages of the job
11 sites. So non-stratified is individual samples averages, and
12 stratified is location or job site averages -- averages of job
13 site averages.

14 Q Now, when you reported this data in the job exposure
15 matrix that we're going to get to in a minute, did you report
16 those averages?

17 A Well, there was one more step in -- before I -- I didn't
18 use that average. The next step was to adjust those numbers
19 for the asbestos content of those samples.

20 Q But did you report -- did you report both the PCM average
21 as well as the PCME average in your job exposure matrix?

22 MR. WEHNER: Objection. Foundation and hearsay.

23 THE COURT: I don't think there's a foundation yet
24 for that question.

25 Q Did you prepare a job exposure matrix to summarize the

Lees - Direct/McMillan

52

1 results of your analysis and the data that you had collected?

2 A Yes.

3 Q And did you report the average for each of the exposure
4 buckets in that job exposure matrix?

5 A Yes.

6 Q And when you reported that average in the job exposure
7 matrix, did you report both the PCM average and the PCME
8 average?

9 A Yes.

10 THE COURT: Do you want to tell me what those are?

11 MR. McMILLAN: Yes, I'm about to get there.

12 Q Why did you report the average?

13 A Okay. Well, the average is the metric that is used to
14 calculate the cumulative exposure or sometimes called dose,
15 which is the input to risk assessment or to epidemiologic
16 studies.

17 MR. McMILLAN: Can we see GG-2217?

18 Q Now, when EPA uses exposure data for its risk assessments,
19 what does the EP -- what data point does the EPA use?

20 A They use the average.

21 Q Now, if you look at GG-2217, you'll see on the left an
22 excerpt from the EPA 1992 supplement RAGS Guidance. What is
23 the RAGS Guidance?

24 A RAGS stands for risk assessment guidance for superfund.

25 Okay? And what it is essentially is EPA's textbook on how to

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53

1 do a risk assessment.

2 Q And in EPA's textbook for how to conduct a risk
3 assessment, what does it say you should use? What exposure
4 data should you use in that risk assessment?

5 A It says the average concentration is the most
6 representative of the concentration that would be contacted
7 over time.

8 Q Now, if you look on the right-hand side of GG-2217, you'll
9 see an excerpt from the EPA 1986 Airborne Asbestos Health
10 Assessment Update. What is that document?

11 A This is EPA's big risk assessment of the public health or
12 the possible public health implications of exposure to
13 asbestos.

14 Q So when the EPA was calculating the risks to public health
15 from asbestos, what was the exposure data they were using?

16 A They used the average.

17 Q Dr. Lees, have you conducted exposure assessments
18 previously for epidemiologic studies or risk assessments?

19 A Yes.

20 Q And have some of those been published in the peer-reviewed
21 literature?

22 A Yes, on that -- we spoke earlier on my chromium study
23 that's been published.

24 Q And when you have reported exposure data within those
25 peer-reviewed articles, how did you report that exposure data?

Lees - Direct/McMillan

54

1 A When it was to be used for an epidemiologic study, I
2 reported the average exposure.

3 MR. McMILLAN: Could I have the ELMO for a moment,
4 please?

5 Q Dr. Lees, I'm showing you what has been marked as GX-628.
6 Do you recognize this?

7 A Yes. That's a paper that I published in the early 1990's.

8 Q And is this an epidemiologic study, or was this a
9 characterization of exposure data for use in epidemiologic
10 studies?

11 A It was a characterization of exposure data used in many
12 epidemiologic studies of chromium and disease, yes.

13 Q And this was published in the peer reviewed literature?

14 A As I remember, it was environmental health perspectives.

15 Q I'd like to have you turn -- or you can look at Page 94
16 with me, please. And you'll see at the bottom you have a
17 statement that says, "Historically, most air sampling in
18 industrial facilities was conducted in an effort to solve a
19 problem. As such, much historic air sampling may overestimate
20 average exposures (required for epidemiologic risk assessment)
21 considerably." Can you explain to us what you meant by that?

22 A Sure. Sure. Historically, and I include the early part
23 of my career in history, unfortunately, but industrial
24 hygienists are problem solvers, so we go and we look for
25 problems that need to be fixed. And so, we make our

Lees - Direct/McMillan

55

1 measurements where we think there may be a problem. So that
2 there's a historic bias to -- if we would go out to a work
3 site, we would only collect a sample during the time period in
4 which people were actively working. We don't collect samples
5 when the equipment is broken down, or when they're on coffee
6 break, or something like that. So, historic data are --
7 reflect not the average over the course of a day, but the
8 exposure during times of actual work.

9 Q So, if you're doing a historic exposure reconstruction and
10 you are using the historic data as the average of all
11 exposures, are you more likely to overestimate or underestimate
12 the actual average exposure?

13 A Well, if it were collected as I described there, it would
14 be an overestimation of the overall average exposure.

15 Q I'd like to turn to Page 95 of your study. And focusing
16 on Table 1, could you please tell us briefly what is Table 1?

17 A Table 1 is a part of that -- my published article, and
18 this is taken from Painesville, Ohio. That would be the
19 Mancuso article on risk of lung cancer related exposure to
20 hexavalent and chromium.

21 MR. WEHNER: Objection. Relevance. This is about
22 chromium.

23 MR. McMILLAN: Your Honor, I am trying to show that
24 in other published peer viewed literature in which Dr. Lees has
25 presented exposure data for an epidemiologic study he has

Lees - Direct/McMillan

56

1 reported the average without any indicators of variability, and
2 that is what this goes to.

3 THE COURT: All right. To that end it's relevant.
4 It's admitted for that purpose only.

5 Q Dr. Lees, does Table 1 present the exposure data, or some
6 of the exposure data that was part of your published article
7 that is GX-628?

8 A Yes.

9 Q And when you reported this exposure data in GX-628, how
10 did you report that data?

11 A Well, these were actually Mancuso, the way Mancuso
12 reported it, as averages.

13 Q And was there any standard deviation, or competence
14 interval reported with the data?

15 A No, there was not.

16 Q Dr. Lees, I'm showing you what has been labeled GX-629.
17 Do you recognize this article?

18 A Yes. This is an article that was published, I think, in
19 2000, summarizing the chromium study that I conducted that we
20 discussed earlier.

21 Q And was this published in the peer viewed literature?

22 A Yes, it was. I believe it's the American Journal of
23 Industrial Medicine.

24 Q And you're one of the authors of this study?

25 A That is correct.

Lees - Direct/McMillan

57

1 Q And if you look at the highlighted language on the first
2 page, can you read that for us?

3 A It's difficult. It says, "Annual average -- " Whoa.

4 Q Sorry.

5 Q "Annual average exposure estimates based on historical
6 exposure measurements were made for each job title in the plant
7 for the years 1950 through 1985."

8 Q So, when you --

9 MR. WEHNER: Objection, Your Honor. He is impeaching
10 his own witness, and leading.

11 UNIDENTIFIED SPEAKER: I can't hear you.

12 THE COURT: I don't think this is impeachment. It's
13 -- but it is getting pretty far afield from what on earth is
14 going on with respect to asbestos.

15 MR. McMILLAN: Understood, Your Honor. I'll move on.
16 Could we see GG-2218, please?

17 Q Dr. Lees, I think you said earlier that the average is the
18 most appropriate and accurate measure of long-term exposure.
19 Is that right?

20 A That is correct.

21 Q Why is that the case?

22 A Well, occupational exposures vary. There's variability in
23 -- for a worker. They're not exposed to the same level, the
24 same concentration every day. One day it may be high, one day
25 it may be lower, the next higher or lower. And -- but over

Lees - Direct/McMillan

58

1 time, these highs and lows balance each other out, and so, over
2 the long term the best estimator of exposure is the average.

3 Q When you're talking about asbestos, asbestos exposures,
4 what are the sources of variability in the measurement of
5 asbestos exposures?

6 A Well, asbestos, or any exposure assessment, the
7 variability is due primarily to three factors. First of all,
8 there's variability due to the analytical method. Second of
9 all, there would be variability due to interworker effects, if
10 you will. And finally, environmental variability plays into
11 this overall variability.

12 Q Can you give me an example of analytical variability?

13 A Well, in the case of asbestos, you could have -- and which
14 I said earlier, concentration is -- the analysis involves
15 counting fibers under a microscope. And one analyst might
16 count 22 fibers, where another analyst would count 20 fibers.
17 Okay? So, that's an error in variability associated with
18 measurement.

19 Q Is analytic variability something that's random, or does
20 it have a direction one way or the other?

21 A It's random. It's up, down. It is totally random.

22 Q Can you give me an example of interworker variability?

23 A Okay. Well, interworker variability, again, these are
24 things that -- differences between workers that may affect
25 exposure. And some examples might be whether somebody was

Lees - Direct/McMillan

59

1 right-handed or left-handed, or they were tall or short, or
2 whether they were experienced or inexperienced in a job.

3 Q Now, would interworker variability be something that is
4 random, or could there be a direction to that error?

5 A There could be a direction, which we would call a bias.
6 For instance, there may be some reason that right-handed
7 workers in a particular process are exposed at higher levels
8 systematically than left-handed workers.

9 Q Now, lastly, environmental variability. Can you give me
10 an example of environmental variability?

11 A Okay. Well, environmental variability is particularly
12 important in the construction trades, which are -- take place
13 in an uncontrolled environment, unlike a factory. And so,
14 these might involve things such as -- well, let's take spraying
15 as an example, spraying and fireproofing, you know, how high
16 the ceiling is, whether there were tarps up, whether the wind
17 was blowing, what direction the wind was blowing, how hard the
18 wind was blowing. All of these things would go to -- to change
19 or affect the measurement of exposure.

20 Q Now, which of these types of variabilities have the
21 strongest effect on asbestos exposures?

22 A Oh. Far and away, asbestos or any other exposure, the
23 environmental -- the random environmental variability has the
24 most effect on, you know, the overall variability.

25 Q How do you know that?

Lees - Direct/McMillan

60

1 A As I said at the beginning, industrial hygienists seek to
2 understand exposures and what influences exposures, so this has
3 been studied many, many times, and the literature, you know,
4 says what I just said.

5 Q In the course of your work on over 100 different exposure
6 assessments, have you looked at the issue of what are the --
7 or, the magnitude of the various sources of data variability?

8 A I think my own observations would bear out what I just
9 said, and what the literature says.

10 Q So, if environmental variability -- well, let me ask one
11 more question. Is environmental variability something that's
12 random, or something that has a systematic bias to it?

13 A Oh, it is random.

14 Q So, if environmental variability is random, and it's the
15 main source of variability, what does that mean to individual
16 exposures over the long term of years to tens of years?

17 A That means that since this variability is random, the ones
18 that are higher and the ones that are lower tend to balance
19 out, and focus or center on an average value. In addition,
20 over time the average of an individual and the average of the
21 entire population will converge upon each other.

22 Q Is that why it's appropriate when using industrial hygiene
23 data in an epidemiologic study to use the average, or to report
24 the average?

25 A Exactly.

Lees - Direct/McMillan

61

1 MR. RASMUSSEN: I object, and move that that answer
2 be struck. It's a leading question on a key issue without the
3 proper foundation.

4 THE COURT: Well, it's a leading question, but there
5 is a foundation. Restate the question, please.

6 Q Why is it appropriate in the long term to use the average
7 exposure for epidemiologic studies?

8 A Because it best represents the long term exposure.

9 Q Dr. Lees, once you have -- you now have the average
10 exposure within each of your different exposure buckets. Are
11 you done at that point?

12 A No. There's still at least one more step here.

13 MR. McMILLAN: Can we go to GG-2220? 22 -- 2219.

14 Q What's the next step that you need to take with the data
15 after you have the average?

16 A Okay. The data that I used and processed or analyzed were
17 collected -- the exposure data were collected using phase
18 contrast microscopy, which is an analytical method that
19 identifies all fibers without respect to its composition. And
20 it's well-known that within the construction environment that
21 there are mixed fibers; that is, asbestos and non-asbestos
22 fibers. So, the next step was to make an adjustment so that we
23 -- the -- I expressed the exposure concentrations as purely the
24 asbestos fiber concentrations.

25 Q Can we back up and can you tell us briefly what is phase

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62

1 contrast microscopy, and how does it work?

2 A Oh. Okay. Sure. Phase contrast microscopy is the method
3 of analysis for air samples. Okay? A sample, as I said, is
4 collected -- fibers are collected on a filter. The filter is
5 examined under a light microscope that is not a whole lot
6 different than the microscope that you used in tenth grade
7 biology. Fibers conforming to certain dimensions are counted,
8 and then from that we can calculate the concentration of fibers
9 in the air.

10 Q Does the phased contrast microscopy method allow you to
11 determine which of those fibers are asbestos?

12 A No. It does not differentiate.

13 MR. WEHNER: Objection. Foundation. Hearsay. This
14 is beyond the scope of his expert report, his disclosures.

15 MR. McMILLAN: Your Honor, no, it's not. As part of
16 his expert disclosures he applies a conversion factor. He
17 applies a different method that we're about to get into to
18 determine what proportion of the fibers are actually asbestos,
19 and then applies that within his job exposure matrix.

20 MR. WEHNER: Your Honor, this is the subject of the
21 expert report of an entirely different expert with a similar
22 name, a Dr. Richard Lee, not Dr. Peter Lees.

23 THE COURT: Well, pull out the report and show me
24 where it is. That's the easiest way to find out whether it's
25 in or outside the scope of the report.

Lees - Direct/McMillan

63

1 MR. McMILLAN: Your Honor, I would refer you to his
2 July 31st, 2007 report, on Page 1.

3 THE COURT: Where is it?

4 MR. McMILLAN: Could I have the ELMO, please?

5 (Pause)

6 MR. McMILLAN: As Dr. Lees explains here, as
7 described in his earlier report and the reports of other Grace
8 experts, it's widely accepted that PCM fiber analysis of air
9 samples collected in non-manufacturing environments will
10 overestimate actual asbestos fiber exposures, which is just
11 what he said. TEM analysis of samples allows the
12 identification of asbestos fibers and thereby a more accurate
13 estimation of actual asbestos fiber concentration. The
14 magnitude of this overestimation, i.e., the ratio of the
15 asbestos fiber concentration derived from TEM analysis to the
16 total fiber concentration derived from PCM analysis varies with
17 the composition of the product. So, ratio can be used to
18 adjust total fiber exposure estimates to derive equivalent
19 asbestos fiber exposures termed PCME from PCM analyses to
20 determine compliance with OSHA exposure standards. That's
21 exactly what I'm asking him to describe right now.

22 MR. WEHNER: Your Honor, I'd point out the next
23 paragraph states, "These analyses have been completed and are
24 presented in the expert report of R.J. -- " Richard J. Lee,
25 dated July 31st, 2000.

Lees - Direct/McMillan

64

1 THE COURT: Yes. And this witness is an expert.
2 He's been offered to report an expert opinion, and experts use
3 other expert reports as part of their opinion.

4 MR. WEHNER: That's right, Your Honor. Another
5 expert developed these factors, and we would object to any
6 testimony from this expert about those factors.

7 THE COURT: Wait. He's not testifying to factors.
8 He's simply describing a process that his report identifies.
9 So far that's all he's done. He hasn't been asked yet, at
10 least, to talk about factors. What he's been asked to do is --
11 at the moment, the last question was whether or not you could
12 count particular types of factors based on the concentration of
13 fibers in the air using particular methodology. That's all.

14 MR. McMILLAN: Your Honor, may I ask him a couple of
15 foundation questions?

16 THE COURT: Well, I think the issue is this in his
17 report or not. And so far, I think it's within the construct
18 of his report. If you get too far outside it, then I think
19 it's going to go perhaps beyond the industrial hygiene, and you
20 do have another expert who has developed factors that you may
21 wish to get into. But so far I think you're within his report.
22 That objection is overruled, so far.

23 Q Dr. Lees, is it customary as an industrial hygienist to
24 work with and rely upon the work of a materials expert to help
25 you develop an adjustment factor for your PCM samples?

Lees - Direct/McMillan

65

1 A Yes. Industrial hygienists typically do not do the
2 analytical portion of any exposure assessment. That -- we rely
3 on experts to do that, other experts.

4 Q And as Richard Lee was doing the analytics, develop the
5 conversion factors that you're using, were you involved in
6 discussing with him how to do that analysis and what you needed
7 it for in your report?

8 A Yes. We had extensive discussions before he carried out
9 the actual mechanics of calculating the conversion factors.

10 Q And was it your work for vermiculite attic insulation back
11 in 2002 where you collected many of the samples that were then
12 analyzed by Dr. Lee to create the conversion factor that you
13 used?

14 A Yes, it was -- my samples were the basis of those
15 conversions.

16 Q The question I was on before, Dr. Lees, is does the -- do
17 the fibers counted with phase contrast microscopy, do you know
18 if those are asbestos fibers or other types of fibers?

19 A The method does not differentiate as to composition.

20 Q Is there another way to determine whether those fibers are
21 actually asbestos?

22 A Certainly. Transmission electron microscopy hooked with
23 another tool called energy dispersive spectrometry will allow
24 the identification of the composition -- whether it's asbestos
25 or not.

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66

1 MR. McMILLAN: Could we have the graphics back,
2 please?

3 Q Has OSHA approved a method involving transmission electron
4 microscopy for determining the proportion of fibers that are
5 actually asbestos?

6 A Yes. In 19 -- I believe it was '88, NIOSH published as a
7 standard method such a procedure, and OSHA recognized it as --
8 recognized it -- I can't even say it -- recognizes it as a way
9 of showing compliance.

10 Q How does --

11 MR. WEHNER: Excuse me, Scott. Your Honor, I would
12 renew the objection. He's now describing the conversion
13 method, which he did not develop.

14 THE COURT: He is not describing the conversion
15 factor. He's been asked whether the government recognizes and
16 has approved a process, and he's testified that, yes, it does,
17 and his earlier background indicates that, in fact, he has been
18 a participant in certain, not particular, but in certain
19 aspects of government studies that have utilized those factors.
20 So far, he's within the bounds of this witness's expertise, and
21 not outside the bounds of the report. Overruled.

22 Q Could you please explain how NIOSH Method 7402 works?

23 A Okay. I'll try to do it quickly. A filter, a given
24 filter is analyzed using phase contrast microscopy, and the
25 fibers -- all fibers counted that conform to certain size --

Lees - Direct/McMillan

67

1 specified size characteristics. So, that gives you the total
2 number of fibers of all types. The fiber is then counted using
3 transmission electron microscopy, which allows us to identify
4 what proportion of all of those fibers are asbestos fibers.
5 And quite simply, you develop a ratio of asbestos fibers to
6 total fibers, and so you could say, for instance, that 50
7 percent of the fibers conforming to these certain size
8 characteristics on the filter were asbestos fibers.

9 Q Was it necessary for you in this case to determine what
10 proportion of the fibers that were measured in the PCM data
11 that you had were actually asbestos?

12 A As I said earlier, especially in the construction
13 environment, there are many different types of fibers present,
14 and the concern here, and the risk of disease is related to the
15 asbestos fibers.

16 MR. McMILLAN: I'd like to show GG-2220, please.

17 Q How did you determine which conversion factors you should
18 use for the PCM data in your report?

19 A Okay. Well, I should start out by stating, first of all,
20 that there is not a universal conversion factor or adjustment
21 factor. They are specific to products, and product uses, so
22 using these groupings that I previously developed, I discussed
23 with Dr. Lee the criteria, the relevant samples that could be
24 used to -- to be used according to the method described in
25 NIOSH Method 7402 to develop these factors.

Lees - Direct/McMillan

68

1 Q So, was NIOSH Method 7402 what was used to develop the
2 conversion factors that you employed?

3 A Yes.

4 MR. WEHNER: Objection. I'm going to renew the
5 objection again. He's now talking definitely about how the
6 conversion factor was developed.

7 THE COURT: In this instance that's a hearsay
8 statement. Sustained.

9 Q Dr. Lees, did you participate in the decision as to how to
10 develop the conversion factor to be utilized for PCM data in
11 your report?

12 A Yes. In my discussions with Dr. Lee, it was jointly
13 decided that NIOSH Method 7402 was the appropriate method to
14 develop these conversion factors.

15 (Pause)

16 Q One last question, doctor. Dr. Lees, on Table 1 shown in
17 GG-2220, do those represent the conversion factors that you
18 used to apply to the PCM data in your analysis in this case?

19 A They do.

20 MR. McMILLAN: Can we show GG-2221, please?

21 Q I think you mentioned earlier that you had created a job
22 exposure matrix. Can you explain to us what a job exposure
23 matrix is?

24 A Well, again, it is a tool for organizing exposure data in
25 terms of the relevant predictors of exposure in broad terms.

Lees - Direct/McMillan

69

1 Q Is a job exposure matrix something that's commonly used in
2 industrial hygiene?

3 A It is a standard part, in particular, of retrospective
4 exposure assessment, and it's used more broadly within the
5 field, too.

6 Q Okay. If we look at GG-2221, let's start first with the
7 product and use categories. Are those the ones that we talked
8 about earlier --

9 THE COURT: Pardon me. Mona, can you turn that off?
10 Otherwise we're never going to be able to hear against that.
11 If you turn -- I think it's -- okay.

12 THE WITNESS: I'm having a hard time, too.

13 THE COURT: Yes. I'm sorry. It's -- they keep
14 pushing the date earlier. I think they don't change the
15 clocks, even though the time is changed.

16 THE WITNESS: It's spring, right?

17 THE COURT: It should turn off in a second. Or not.

18 (Pause)

19 MR. McMILLAN: It's winding down.

20 Q Dr. Lees, first discussing the product and use categories
21 that you created, can you show us where those product and use
22 categories appear in your job exposure matrix?

23 A Okay. The products and uses are defined on the left-hand
24 side, the left-hand column of the matrix, by the number one.
25 This -- not all of the -- in this portrayal not all of the

Lees - Direct/McMillan

70

1 categories are listed. This is just a summary, or a brief
2 excerpt.

3 Q Second, the nature of exposure categories, or the exposure
4 groups that you created, where do those appear on your job
5 exposure matrix?

6 A Those are number two, across the top of the matrix. And
7 again, there were five categories there instead of just the
8 three shown.

9 Q Okay. And essentially this looks like a spreadsheet. Is
10 that essentially what it is?

11 A Yes.

12 Q Now, lastly, the exposure data that you had gathered and
13 calculated averages on, where does the exposure data go?

14 A Okay. Each of these groups of data that I've previously
15 described as being put into buckets would be -- the average
16 from each bucket would be transferred or entered into the
17 appropriate part of the matrix, which -- we use the word
18 "cell", it sounds better than bucket -- but so that where it
19 says eight-hour TWA right there, that would be the average
20 exposure of people who used vermiculite dry and were mixers.

21 Q Okay. Could you look in your binder with me at Exhibits
22 GX-002, 003, 004, and 005, Dr. Lees?

23 A Well, not so fast here. What was the first one?

24 Q GX-002.

25 (Pause)

Lees - Direct/McMillan

71

1 A I'd love to help you out on that, but I don't see it.

2 GX-002?

3 Q Through 005.

4 A I don't see any 00's here. I'm sorry.

5 Q Okay.

6 A Is it front, back, middle?

7 THE COURT: Can you put it up on the chart?

8 UNIDENTIFIED ATTORNEY: What did you hand up there,
9 Scott?

10 THE COURT: Because it's not in anybody's binder.

11 UNIDENTIFIED ATTORNEY: Do you want me to put it up?

12 UNIDENTIFIED ATTORNEY: Yes.

13 MR. McMILLAN: 002 through five.

14 Q Dr. Lees, have you -- do you now see GX-002 through 005?

15 A I've got it now.

16 Q Are these the job exposure matrix that you created
17 analyzing the exposure data from W.R. Grace?

18 A Yes. Two through five are four tables taken directly from
19 my July 31 report.

20 Q And are GX-002 through 005 true and accurate copies of the
21 job exposure matrix that you created as a result of your
22 analysis of the W.R. Grace data?

23 A Yes. They appear to be.

24 MR. McMILLAN: Your Honor, I would move GX-002, 003,
25 004 and 005 into Evidence.

Lees - Direct/McMillan

72

1 MR. WEHNER: We would object on the grounds that he
2 has PCME data in there -- PCME that has been subject to the
3 PCME conversion that we discussed earlier.

4 MR. McMILLAN: Your Honor --

5 THE COURT: But he's already stated that he used
6 those conversion tables, and -- over your objection he can't
7 testify to the standards, but I think we'll admit it now
8 subject to connecting up with respect to how those data are
9 calculated. You're calling Dr. Lees -- Dr. Lee, correct?

10 MR. McMILLAN: Dr. Lee is not currently on our
11 witness list, Your Honor.

12 THE COURT: Well, how are you going to connect up the
13 standards, then?

14 MR. WEHNER: That's my point, Your Honor.

15 (Pause)

16 MR. McMILLAN: Your Honor, when I asked foundation
17 questions of Dr. Lees, what he said was that it is standard for
18 industrial hygienists to send out the samples for analysis and
19 for calculation of this type of conversion factor. This is
20 someone who is a materials scientist, and that's what he did,
21 and he consulted with Dr. Lee about how it was going to be
22 done, what standards and protocols were going to be followed,
23 and he reached agreement on that. So, the fact that Dr. Lee
24 may have run the analysis and produced a mathematical
25 conversion doesn't mean that it's not within the purview of Dr.

Lees - Direct/McMillan

73

1 Lees' expert testimony here today to say that he used the
2 conversion factor, what he specified, and why he used it.

3 MR. WEHNER: Your Honor, I'd ask for some voir dire
4 on this fact?

5 THE COURT: Voir dire on a summary chart? You get to
6 cross examine --

7 MR. WEHNER: No. Voir dire on his --

8 UNIDENTIFIED ATTORNEY: On the foundation.

9 MR. WEHNER: -- on the foundation for this PCME
10 exposure factor that he's included in his chart.

11 MR. McMILLAN: I think that's cross examination, Your
12 Honor.

13 THE COURT: I think it's cross examination, too,
14 isn't it? I have not heard of a voir dire on an issue of cross
15 examination.

16 MR. WEHNER: Fine, Your Honor. We'll stand on our
17 objection.

18 THE COURT: All right. I think it's overruled. This
19 is a summary chart, so I assume at this point in time you've
20 had access to the data that underlies the summary because I
21 don't hear an objection on that basis. To the extent that this
22 is a summary chart, it is admitted as a summary chart. Those
23 are what these purport to be, at least, 02. These are not in
24 the binders, so --

25 MR. McMILLAN: I apologize for that, Your Honor.

Lees - Direct/McMillan

74

1 THE COURT: -- I'm not sure what 03, 04, an 05 are.
2 The witness has them. I haven't seen the rest. Oh. These are
3 03. Go ahead. What's 04 and 05? All right. These are just
4 --

5 MR. McMILLAN: The table takes four pages, Your
6 Honor.

7 THE COURT: Okay. It's one table on four pages.

8 MR. WEHNER: Your Honor, we're objecting to those on
9 the same basis that I articulated just now.

10 THE COURT: Yes. Apparently it's just different
11 tables that are additional time weighted average summaries, and
12 so, I accept the objection to relate to 02, 03, 04 and 05, but
13 the objections are overruled on the same bases. These are
14 summary charts of additional evidence. This witness has
15 testified that this is customary in his field to have someone
16 else prepare the underlying data and for him then to categorize
17 it in the fashion that is categorized here. So, the objection
18 is overruled.

19 MR. McMILLAN: Can we see GG-2227, please?

20 THE COURT: In the event that your cross examination
21 indicates that there is some problem with these exhibits that
22 I'm not aware of now, because I've never heard about voir dire
23 with respect to an exhibit in this fashion, then I will subject
24 this to a different ruling at that time if this appears to be
25 an error. But at the moment I see no basis on which not to

Lees - Direct/McMillan

75

1 offer -- to admit these exhibits.

2 MR. McMILLAN: 2226. I apologize.

3 THE COURT: So, just give me a minute, please. And I
4 would like copies of these handed up. Tomorrow will be fine.

5 MR. McMILLAN: We'll do that, Your Honor.

6 THE COURT: Exhibits 02, 3, 4 and 5 are admitted.

7 (Pause)

8 Q Dr. Lees, I have shown you GG-2227, which is a summary of
9 your job exposure matrix.

10 THE COURT: This is 2226.

11 MR. McMILLAN: I'm sorry. 2226.

12 THE COURT: Okay.

13 Q Now, Dr. Lees, if we look down at the line here that's
14 highlighted, mix, wet, and sprayed, can you tell me what
15 products would fit within that category that you've created?

16 A Okay. The category is vermiculite mixed, wet, and
17 sprayed, encompasses the Monokote IV and V -- primarily the
18 Monokote IV and V spray applied fireproofing materials.

19 Q So, when there's data in the row next to mixed, wet, and
20 sprayed for asbestos, what types of asbestos fibers would
21 likely be making those data?

22 A I'm sorry. Could you ask that question again?

23 Q Sure. When you look at the numerical values you have in
24 the rows following mixed, wet, and sprayed for vermiculite,
25 which you said was Monokote IV and V, what fibers would likely

Lees - Direct/McMillan

76

1 make up those asbestos exposures?

2 A Okay. Well, it says this was vermiculite. These would be
3 an amphibole-type asbestos.

4 Q Now, when you look down at vermiculite -- sorry --
5 vermiculite and chrysotile sprayed, where it says paren
6 construction --

7 A Yes.

8 Q What type of product in that category did you have
9 exposure data on?

10 A In that category we're primarily talking about the
11 Monokote III material that preceded the IV and V.

12 THE COURT: I'm sorry. Where are you now?

13 MR. McMILLAN: Under vermiculite and chrysotile, the
14 first row that says sprayed construction.

15 (Pause)

16 MR. McMILLAN: That's now highlighted.

17 Q Dr. Lees, what type of asbestos fibers would you expect
18 would make up the exposure values you see in the row after
19 sprayed construction?

20 A Those would be predominantly, overwhelmingly chrysotile
21 fibers.

22 Q Would there be any other type of fibers in there?

23 A Well, since there was vermiculite present, there's the
24 possibility that there could be some contribution of amphibole
25 to that number.

Lees - Direct/McMillan

77

1 Q Is there a way in which you could use the data for mixed,
2 wet, and sprayed, which were the Monokote IV and V data, to
3 allow you to determine a rough percentage of the Monokote III
4 fibers that could be attributed to Libby amphibole?

5 A I think that can be estimated -- you know, estimated.

6 Q Well, if you look at the data that goes across for A, C,
7 D, and E, for the Monokote IV and V data, and compare it to the
8 same data for the Monokote III and the sprayed row --

9 A Um-hm.

10 Q -- what does that tell you about what proportion of the
11 Monokote III data could be Libby amphibole?

12 A Okay. Well, let's just confine ourselves to A to make
13 life simple for a moment here. Excuse me. The vermiculite
14 mixed, wet, and sprayed and the vermiculite and chrysotile
15 mixed, wet, and sprayed are very similar in composition with
16 the exception of, obviously, the added chrysotile in the latter
17 category there. So that in the vermiculite it's just the
18 contribution of vermiculite. In the vermiculite and chrysotile
19 it's both.

20 Q Well, what does that tell you about what proportion of the
21 Monokote III asbestos would likely be Libby amphibole?

22 A Well, just --

23 MR. WEHNER: Objection, Your Honor. This, again, is
24 beyond the scope of his report. He had nothing in his reports
25 that disclosed that he was going to be testifying about the

Lees - Direct/McMillan

78

1 relative components of vermiculite and chrysotile products of
2 Libby amphiboles.

3 THE COURT: They're on his chart.

4 MR. WEHNER: He didn't talk anything in his report
5 that he was going to be talking about the components of the --

6 THE COURT: You could have asked him that in his
7 deposition. It's in his report. I mean, it's on his chart.

8 MR. McMILLAN: All he's going to do is divide one
9 number on the chart by another one, Your Honor.

10 THE COURT: This is -- I'm sorry, but this clearly is
11 something that is evident. If it is something more than a math
12 calculation, then maybe I'll make my -- change my mind, but
13 this appears to be something all the witness is going to be
14 asked to do is to make a math calculation. If it's beyond that
15 I will reconsider. Overruled. Go ahead.

16 Q Can you tell us, Dr. Lees, the proportion for the -- all
17 the various sprayed numbers that would be made up of Libby
18 amphibole by comparing it to the Monokote IV and V numbers?

19 A Using a simple math calculation, because of the similarity
20 of the products and their use of the number .4283, roughly
21 speaking about .009 would be the contribution from the
22 vermiculite, and the remainder would be the contribution from
23 the chrysotile. So, doing the math, it looks like about two,
24 two-and-a-half percent of the fibers in that mixed category are
25 in the vermiculite and chrysotile category are attributable to

Lees - Direct/McMillan

79

1 the vermiculite.

2 Q And if you look at the C, D, and E, roughly what
3 percentage of the Monokote III data is likely to be Libby
4 amphibole?

5 A Those appear to be on the order of maybe one to two
6 percent contribution from the vermiculite.

7 Q Thank you.

8 MR. McMILLAN: Can we see GG-2228?

9 Q I want to talk, finally, about a comparison of your data.
10 If you look at this slide, Dr. Lees, you'll see that there are
11 two dotted lines on it. Do you recognize what those dotted
12 lines are?

13 A Yes. Those represent the construction industry average
14 exposures reported by Nicholson in his 1982 or '83 paper.

15 Q And do you see the small bars along the bottom of the
16 graph? What do those represent?

17 A The bars down at the bottom represent the average
18 exposures for the different product groupings and exposure
19 categories for W.R. Grace products.

20 Q And when you compare them, what do you see?

21 A Well, the Grace product exposure concentrations are
22 considerably less than those reported by Nicholson for the
23 construction industry average.

24 Q Thank you.

25 MR. McMILLAN: I now tender the witness for cross.

1 THE COURT: Give me -- put that back up, please, and
2 give me a second.

3 (Pause)

4 THE COURT: Okay. Thank you. Why don't we take a
5 ten-minute recess and then we'll start with cross examination?

6 MR. WEHNER: Thank you, Your Honor.

7 THE COURT: Thank you.

8 (Recess)

9 THE CLERK: -- come to order.

10 THE COURT: Please be seated. Before you begin,
11 counsel, I wanted to talk a little bit about the schedule. One
12 of my colleagues had a death in the family, and as a result
13 tomorrow night I have to leave here at six. So, tomorrow we
14 will end promptly at six, maybe even about ten until six.
15 Tonight we can stay until six, but we'll have to be done at
16 six, as well, tonight. And Wednesday -- I don't know, what are
17 your flights out Wednesday?

18 MR. BERNICK: Wednesday? As early as possible. The
19 -- I think that Wednesday we'll have Dr. Anderson, and I think
20 that we'll be able to get done with her -- we're going to be
21 obviously starting in the morning tomorrow and Wednesday. That
22 should not be a problem. In fact, we were thinking that we'd
23 probably would have extra time left at the end of the day to
24 deal with some of the deposition summaries. So -- but I'm not
25 -- if Your Honor wants to have a certain cut off time on

1 Wednesday, as well, I don't think the witness -- that's going
2 to threaten the live testimony in any event.

3 THE COURT: You're not resting Wednesday, though?

4 MR. BERNICK: No.

5 THE COURT: No. Okay.

6 MR. BERNICK: After Ms. Anderson we have -- Dr.
7 Anderson we have one more witness, who is Dr. Florence, and
8 then these doctors' summaries can come in at any point in time,
9 and then we're done, so I think we'll probably be resting the
10 following Monday.

11 THE COURT: Okay. So, Wednesday would be a good time
12 to bring those depositions in, then?

13 MR. BERNICK: Yes. That's correct.

14 THE COURT: Okay. All right.

15 MR. FINCH: Your Honor, there's a motion in limine
16 with respect to Professor -- Dr. Florence's testimony, and I
17 guess I'd like your guidance as to when you would like to hear
18 that. It's our motion. We could --

19 THE COURT: I think Wednesday may be a good time to
20 argue that if there is going to be time after Dr. Anderson
21 testifies.

22 MR. BERNICK: Yes, I -- we can do that, as well. We
23 submitted our response. I don't know. Is there supposed to be
24 a reply?

25 MR. FINCH: No. There's no reply. They submitted

1 their response on Saturday --

2 MR. BERNICK: So --

3 THE COURT: Yes. I have it.

4 MR. BERNICK: So, we can maybe do that on Wednesday.
5 If that would be preferable to the folks on the other side, as
6 opposed to doing the doctors' summaries, that's fine.

7 THE COURT: Well, we may be able to do both. I think
8 that argument --

9 MR. BERNICK: We may. I don't believe our argument
10 --

11 THE COURT: I'm going to invoke executive privilege
12 and limit that argument to 20 minutes per side. I think that
13 should be sufficient. That issue has been briefed several
14 times.

15 MR. FINCH: Okay. That's perfectly fine. So, why
16 don't we plan on doing that when Ms. Anderson's testimony is
17 completed?

18 THE COURT: Okay. And then we'll do the argument,
19 and after that, then, if there's still time you can start with
20 the depositions.

21 MR. BERNICK: That's fine.

22 THE COURT: Is that acceptable to everyone?

23 MR. FINCH: Yes, Your Honor.

24 MR. BERNICK: Yes, Your Honor.

25 THE COURT: And so, we'll break at five so that you

1 can get your schedule -- what -- I'm trying to find out what
2 accommodates your flights out on Wednesday.

3 MR. BERNICK: I think that -- my flight is at six, so
4 that would be --

5 THE COURT: So, you need to leave at four, at least
6 by four?

7 MR. BERNICK: Oh, no. We're much more risk tolerant
8 than that?

9 (Laughter)

10 THE COURT: So is my daughter, with not necessarily
11 happy consequences recently.

12 MR. BERNICK: No. All I'm saying is that we should
13 use up the time until five o'clock, and then if it's possible
14 maybe break a little bit early, that's fine, too. But I think
15 it would be better just to get things done so that we are
16 assured of being able to rest on Monday, and that creates a
17 good breaking point for scheduling purposes so that their case
18 can begin.

19 MR. FINCH: Yes. I agree with that.

20 THE COURT: Okay. Did everyone get the notice that I
21 had to cancel one of the May dates that I had to give you
22 because of another action? Okay. So, are the June dates that
23 I proposed acceptable if we need to get into those dates?

24 MR. BERNICK: They're fine from our point of view.

25 MR. FINCH: They're fine from our perspective, but we

Lees - Cross/Wehner

84

1 can't go much farther out than that. By the middle of June Mr.
2 Inselbuch and I are booked on other matters pretty continuously
3 for a very long period of time.

4 MR. BERNICK: Well then, that -- I really think --
5 counsels I don't think need to take up the Court's time here
6 this afternoon, but we have a very long list of witnesses that
7 you still have on your list, and if we're going to finish up by
8 June, we really need to see a more realistic list.

9 THE COURT: Well, all I was doing was substituting
10 two days for --

11 MR. BERNICK: Yes. I --

12 THE COURT: -- two days, so --

13 MR. BERNICK: I'm really more reacting to their
14 statement that there's no more time left.

15 THE COURT: Okay. All right. Those were the
16 housekeeping matters I needed to address. Thank you.

17 CROSS EXAMINATION

18 BY MR. WEHNER:

19 Q Good afternoon, Dr. Lees. My name is Jim Wehner, and --

20 A I don't think your microphone is on.

21 MR. WEHNER: Is this microphone on?

22 UNIDENTIFIED ATTORNEY: You have to lean in closer.
23 There you go.

24 THE COURT: There you go.

25 Q Can you hear me now?

Lees - Cross/Wehner

85

1 A I can hear you now.

2 (Laughter)

3 Q My name is Jim Wehner. I am with the ACC. We haven't met
4 before, Dr. Lees, but good afternoon.

5 A Good afternoon.

6 MR. WEHNER: Your Honor, may I approach the witness

7 --

8 THE COURT: Yes.

9 MR. WEHNER: -- and the bench to give you a binder?

10 THE COURT: Yes, sir.

11 (Pause)

12 THE COURT: Mr. Wehner, are you not going to be
13 referring to the debtor's binder?

14 MR. WEHNER: No. I might be referring to one or two
15 of their demonstratives, and I'll put them on the ELMO --

16 THE COURT: All right.

17 MR. WEHNER: -- if that works.

18 THE COURT: Thank you.

19 Q Dr. Lees, you started your direct testimony by explaining
20 that what you have done is a retrospective exposure analysis of
21 those who worked with Grace products. Is that correct?

22 A Yes. That's correct.

23 Q Now, you did not review any individual claimant's response
24 to the W.R. Grace personal injury questionnaire, is that
25 correct?

Lees - Cross/Wehner

86

1 A I saw one or two as examples, but there was really no
2 review of the individual responses.

3 Q You haven't reviewed the exposure information that
4 individual claimants attached to their PIQ responses, for
5 example?

6 A No, I have not.

7 Q In fact, in your work in this case you have not relied on
8 the personal injury questionnaire data at all, is that correct?

9 A I stated that in my previous testimony. Yes.

10 Q You are not going to -- your opinion here is not about
11 what concentration of asbestos fibers from a Grace product any
12 particular individual has been exposed to, isn't that correct?

13 A That is correct.

14 Q And you have not determined the cumulative asbestos
15 exposure of any individual making a claim against W.R. Grace,
16 is that correct?

17 A That is correct. I've presented the average eight-hour
18 time weighted averages -- concentration associated with a given
19 product and use.

20 MR. WEHNER: I don't know who I ask, but could I have
21 the ELMO?

22 Q Dr. Lees, do you recognize that as one of the
23 demonstratives you just used with -- in your direct testimony
24 with Mr. McMillan?

25 THE COURT: What exhibit is it, please? It's off the

Lees - Cross/Wehner

87

1 --

2 THE WITNESS: Oh, I'm sorry. It's GG-2210.

3 THE COURT: Thank you.

4 THE WITNESS: That's --

5 (Pause)

6 Q You explained earlier that you sorted W.R. Grace asbestos
7 containing products into several product categories, isn't that
8 right?

9 A That is correct.

10 Q Okay. And this chart shows those categories that you
11 sorted them into, is that correct?

12 A Yes.

13 Q There's vermiculite products, there's vermiculite and
14 chrysotile products, and there's chrysotile products. Is that
15 right?

16 A That's correct.

17 Q Now, Dr. Lees, you didn't go out, as part of your work on
18 this -- in your expert work for this case, you didn't go out
19 and take measurements yourself, isn't that right?

20 A That's correct. The measurements that I used were
21 collected in the 1960s, the 1970s, and the 1980s, when these
22 Grace products were actually in use.

23 Q So, your -- what you did is go out and look for historical
24 reports of Grace products and measurements that were associated
25 with those products, is that right?

Lees - Cross/Wehner

88

1 A That is correct.

2 Q In fact, you testified, didn't you, that there were --
3 that you found about 300 such reports, is that right?

4 A Yes. That's correct.

5 Q With respect to the product category chrysotile --

6 A Yes.

7 Q -- you found no historical measurements for any of the
8 products in that group, is that correct?

9 A There were no existing measurements. That is correct.

10 Q So, you don't have any historical measurements associated
11 with the use of those products, is that correct?

12 A That is correct.

13 Q And this category, vermiculite and chrysotile -- right
14 there -- when you went out and looked for historical reports
15 you found seven, is that right?

16 A No. I believe there were ten individual site reports.

17 Q Ten site reports contained -- ten sites -- measurements at
18 ten sites contained in seven reports, is that fair?

19 A It's semantics, but yeah.

20 Q That's all the historical measurements you had for
21 vermiculite and chrysotile, is that correct?

22 A In terms of direct measurements, I -- well --

23 Q Are you referring to something?

24 A I'm referring to the GX-0002 through 0005.

25 Q Those are the portions of your expert report that

1 summarize --

2 A Correct. Correct. And the answer to your question is
3 yes, the data were confined to the sprayed material that fell
4 within that category.

5 Q That sprayed material was Monokote III, correct?

6 A That's correct.

7 Q So, for all the products that you put into vermiculite and
8 chrysotile, the only one you had any historical measurements on
9 was Monokote III, is that correct?

10 A Monokote III. That's correct.

11 Q So, for vermiculite and chrysotile, and chrysotile, the
12 only thing we've got are measurements at ten sites for Monokote
13 III?

14 A And knowledge of the associated or other similar products
15 by which I drew some analogies, or some conclusions.

16 Q You drew analogies, but as far as the actual hard data you
17 found, it was just the Monokote III data?

18 A That is correct.

19 Q Of the 300 reports that you found, the rest were in the
20 vermiculite category, is that correct?

21 A Yes. That's correct.

22 Q The category vermiculite and chrysotile sprayed -- hold
23 on. I'm going to put that back up because it might be helpful
24 for us to refer to that. The category vermiculite and
25 chrysotile sprayed includes about 30 different Grace products,

1 is that correct?

2 A There is the Monokote III and then there are approximately
3 30 decorative or acoustical plasters. That's correct.

4 Q In vermiculite and chrysotile troweled, in that product
5 category and use subcategory, one of the products that's in
6 there is Zonolite High Temperature Cement, is that correct?

7 A I'll take your word on that. It's a long list, and off
8 the top of my head exactly where things go, I'm not certain.

9 Q Would it help you to take a look at your report?

10 A Well, I'll take your word for it.

11 Q It's in there.

12 A Okay.

13 Q But we don't have any measurements, historical
14 measurements associated with the use of Zonolite High
15 Temperature Cement?

16 A We do not.

17 Q Likewise, in vermiculite and chrysotile brushed and
18 painted category, you have Zonolite Finish Coat in there?
19 Decorator's White? You're nodding. Can you say yes or no,
20 just --

21 A I'm sorry. You're correct.

22 Q Okay. High-Sorb Acoustical Plaster?

23 A If you say so.

24 Q Okay. I'm not saying so.

25 A No. If you are --

Lees - Cross/Wehner

91

1 Q I'm asking you.

2 A As I say, there are over 100 products, and off the top of
3 my head with these specific -- you know, a lot of these
4 specific minor products, exactly where they go, there was a lot
5 of thought and study that went into it. At the time exactly
6 what ended up where I don't totally recollect at this point.

7 Q But, no historical measurements for those products?

8 A That is correct.

9 Q In fact, for all the Grace products that contain added
10 chrysotile asbestos, except for Monokote III, you had no
11 historical measurements?

12 A No, I have -- yes. The actual measurements are limited to
13 the Monokote III.

14 Q Let's take a closer look at the vermiculite and chrysotile
15 sprayed category, and I know it's hard to remember all of the
16 products that you put in there, but --

17 MR. WEHNER: Let's put up on the screen, John, if you
18 would, ACC/FCR-532?

19 Q This is your July 31st report, I believe, the same one
20 that you referenced in your direct testimony.

21 MR. WEHNER: If you could put up Page 68?

22 Q Do you see the Page 68? You can zoom back out so we can
23 have a look at the page. Do you recognize that --

24 A Yes.

25 Q -- Dr. Lees?

1 A Yes.

2 Q That's Page 68 of your July 31st report?

3 A That's correct.

4 Q And that has a list of the products that you put in this
5 category, vermiculite and chrysotile sprayed?

6 A That's correct.

7 Q Zonocoustic MK2 vermiculite acoustical plaster, all of
8 these products you have put in this category?

9 A That's correct. They were placed in that category on the
10 basis of their composition --

11 Q Right.

12 A -- as I stated earlier.

13 Q Now, all of these products don't have the same amount of
14 asbestos in them, is that correct?

15 A They are within a range close.

16 Q They're close?

17 A Yes. They're not exact. They are similar, would be a
18 good way to characterize it.

19 Q Do you see down on the list Prep-Coat #5?

20 A That's one of the ones listed.

21 Q That's right. That has five to seven percent asbestos by
22 weight, is that correct?

23 A Again, I will -- if you've read that, and that's correct,
24 I will take that -- I don't have a specific recollection of all
25 these -- details of all these hundreds of products.

Lees - Cross/Wehner

93

1 Q You put that number in an appendix to your June 11th
2 report, didn't you?

3 A The data in terms of the composition have been presented
4 in my reports. That's correct.

5 Q Let's take a look at your June 11th report, ACR -- I'm
6 sorry -- ACC/FCR-531. If you -- this is your June 11th report.
7 Do you see that?

8 A Yes.

9 Q Do you recognize that as your report?

10 A Yes.

11 Q Okay. Let's go to Appendix B of that report, which is the
12 reproduces product appendix.

13 MR. WEHNER: Can we see the first page of Appendix B
14 there? Let's go to the first page of Appendix B, so it would
15 be back, I think, to Page 1 of that particular series.

16 (Pause)

17 Q Do you recognize this as Appendix B of your June 11th
18 expert report?

19 A It appears to be. Yes.

20 Q Now, let's go to Page 25 of that appendix. We see
21 Prep- Coat there. Do you see the entry Prep-Coat?

22 A I do.

23 Q Okay. Do you see, in Paragraph G, J, it says
24 approximately five to seven percent asbestos by weight?

25 A Yes.

Lees - Cross/Wehner

94

1 Q Do you have any reason to doubt that that's correct?

2 A This was taken directly from a Grace disclosure. This is
3 a Grace disclosure document, as it says on the beginning of the
4 appendix.

5 Q Okay. Another one of the -- Prep-Coat 1 is one of the
6 products you included in vermiculite and chrysotile sprayed.
7 Another one is Zonolite Spra-Tex. That contains 36 percent
8 asbestos. Are you aware of that?

9 A Again, I will -- I believe you.

10 Q Okay. Well, let's just take a look at ACC/FCR-531.
11 That's your June 11th report, back in the same Appendix B that
12 we were just looking at. Let's look at Page 6 of that. Do you
13 see there the entry Zonolite Spra-Tex?

14 A Yes.

15 Q Okay. Let's go to the next page, Page 7. And the
16 Paragraph G, J, do you see that paragraph?

17 A Yes.

18 Q Okay. It says the regular Zonolite Spra-Tex is 30 to 36
19 percent 7M asbestos by weight. Do you see that?

20 A Yes.

21 Q And you don't have any reason to doubt that that's
22 correct, right?

23 A Again, this is directly from a Grace --

24 Q Okay.

25 A -- submission.

Lees - Cross/Wehner

95

1 Q So, in vermiculite and chrysotile sprayed, that category,
2 we've got products with five percent asbestos by weight, and
3 products with 36 percent asbestos by weight, is that correct?

4 A As you say, there are on the order of 30 or so decorative
5 plasters, and they encompassed a range of asbestos contents
6 from -- I assume that you picked the highest and the lowest.

7 Q I did. That's six percent -- I mean, that's -- one has
8 got six times more asbestos in it than the other one, is that
9 right?

10 A If I can do the math, that's approximately correct. Yes.

11 Q Okay. We touched on this before, but the historical
12 measurements that you found in the vermiculate and chrysotile
13 sprayed category were seven historical reports at ten sites, is
14 that right?

15 A That's correct.

16 Q And these historical reports are from a period of about
17 1968 to 1972, is that correct?

18 A As I remember. Yes.

19 Q We don't have any historical reports from before 1968, is
20 that correct?

21 A That's correct. Although I will posit to you that from my
22 understanding of the entire process that there had been no
23 changes in the composition or the technique by which Monokote
24 III was applied during the entire period of its use, so I have
25 no reason to believe that the resulting concentrations would be

Lees - Cross/Wehner

96

1 responsive to any question that was pending.

2 THE COURT: All right. It's stricken.

3 UNIDENTIFIED ATTORNEY: Your Honor --

4 THE COURT: It was not responsive.

5 Q Now, these historical measurements were taken by people
6 other than you, right?

7 A That's correct.

8 Q Back in 1968 to 1972 you were in college?

9 A That's correct. The good old days.

10 Q These historical measurements are not peer review studies,
11 right?

12 A No. They are samples that were collected in the regular
13 course of business by Grace. In addition, there are several of
14 the studies, the sets of samples were collected by government
15 agencies in the course of their doing regular, everyday
16 business.

17 Q The measurements that were taken in these studies were not
18 standardized? Is that correct?

19 A I guess I would ask you what you mean by standardized.

20 Q They weren't taken at -- all at the same distance, for
21 example, from spraying or mixing events?

22 A Well, in that respect they were standardized in that they
23 were personal samples, which means that the sampling apparatus
24 was connected to the workers' lapel for the mixers on the
25 sprayers. In addition, they were standardized in that they

1 used the pertinent or the relevant standard sampling and
2 analytical method that was used at the time. So, in that sense
3 they are standardized.

4 Q In the sense that the readings that you categorized in --
5 let me rephrase that. Apart from the spraying and mixing
6 samples, the other samples were not standardized as far as how
7 far they were taken from the spraying and mixing events. Is
8 that correct?

9 A No. They were taken in other work areas.

10 Q Right. When these measurements were going on, the workers
11 and the supervisors at these sites would have known that the
12 measurements were being taken, right?

13 A It's hard to imagine that they didn't know that they had a
14 pump on their belt, yes.

15 Q They have, like, a pump on their belt, and then they have
16 some kind of -- what is it -- it's like a vacuum device up here
17 by their breathing zone?

18 A No. It's -- the pump is a -- it sucks air through a piece
19 of tubing that is connected to what we call a cassette, which
20 is a plastic holder that holds a piece of filter paper, and the
21 fibers are collected on the filter paper.

22 Q These reports, these seven reports covering ten sites that
23 had historical Monokote III air samples in them, you got these
24 from Grace through their attorneys? Is that correct?

25 A Well, I had several of them in my possession through the

Lees - Cross/Wehner

98

1 attorneys some time ago and I received several additional ones
2 as a part of this work.

3 Q So, either back several years ago, or recently, you got
4 them from Grace through their attorneys?

5 A That's correct.

6 Q And, you asked Grace for all the reports that talked about
7 exposure anywhere, for any of their products, right?

8 A That's correct. Or any of their vermiculite or chrysotile
9 containing products.

10 Q As far as you know, these seven reports covering ten sites
11 are the only ones that still exist that have contemporaneous
12 measurements associated with the application of Monokote III,
13 is that correct?

14 A To my knowledge, these ten different study sites are the
15 extent of the data.

16 MR. WEHNER: John, could you pull up ACC/FCR-2082,
17 please? Dr. Lees, this is reproduced in the binder in front of
18 you. John, could you page through to the last page in that
19 series? There you go.

20 Q Dr. Lees, do you recognize this document?

21 A I haven't seen this document.

22 Q You've never seen this document before?

23 A I have not.

24 Q It contains measurements made during the application of
25 Monokote III, is that correct?

Lees - Cross/Wehner

99

1 A I don't see where it says that. Oh, I see there.
2 Monokote III was being used at the boat construction site
3 during the time of our visit.

4 Q The following tables list locations and results of the air
5 samples that were taken. You haven't see this, so I presume
6 you did not include this in your work, did you?

7 A I --

8 MR. McMILLAN: I would object until the witness has a
9 chance to review the document to determine whether or not any
10 of this is any information that he has seen or used before.

11 Q Dr. Lees, it's reproduced in your binder, if you want to
12 look at it in paper. It's sometimes easier than looking at it
13 --

14 A What section?

15 Q If you look under the Tab 2082.

16 A Okay.

17 Q I think it's towards the back. There's a couple of
18 preliminary letters and then, I think, the last page is the one
19 that we're looking at that has these measurements on it.

20 A Okay. I've --

21 Q Having looked at it you still don't recognize it, right?

22 A No. I have not seen this report before.

23 Q So, Grace did not provide you with this report, is that
24 correct?

25 A As I said, I have not seen this report before.

Lees - Cross/Wehner

100

1 Q If you had had this report in your possession, you would
2 have certainly considered it for inclusion in your work in this
3 case, would you have not?

4 A That's correct.

5 MR. WEHNER: Could you switch to the ELMO again?

6 Q Dr. Lees, I put on the ELMO one of the demonstratives that
7 you used with Mr. McMillan. It's GG-2212. Do you see that on
8 the screen?

9 A Yes, I do.

10 Q Okay. These categories, A through E, are the categories
11 that you used to further sort the measurements that you found
12 in historical reports, is that correct?

13 A Yes. Not the final sort, but the further sort, yes.

14 Q First you sorted by product type --

15 A Correct.

16 Q -- and then sorted by these nature of exposure categories,
17 right?

18 A That's correct.

19 Q So, when you found historical measurements in a historical
20 report, you had to decide which bucket or which category to put
21 them in, right?

22 A That's correct.

23 Q Now, these categories, A through E, came from the PIQ, is
24 that right?

25 A They coincide with the PIQ, that's correct.

Lees - Cross/Wehner

101

1 Q All right. Just to be clear, I don't know if I -- PIQ,
2 personal injury questionnaire --

3 A Correct.

4 Q We use as a lingo a lot.

5 A Well, I'll try not to use industrial hygiene lingo.

6 Q Okay. Now, each of these categories can encompass
7 multiple job titles, right?

8 A That's correct. Although several of them are very narrow.

9 Q B, for example, has -- let me rephrase that. Jobs in
10 which a worker might personally disturb an in place Grace
11 asbestos containing product, you put in Category B, is that
12 right?

13 A That's correct, yes.

14 Q An example might be an electrician, for example?

15 A At the time of construction.

16 Q At the time of construction? Are you sure?

17 A Yes. I have included electricians post construction, that
18 is doing renovations in my last category there.

19 Q In which category?

20 A The one that's entitled combined, post construction.

21 Q So, an electrician is in B at the time of the
22 construction?

23 A If it's an electrician who is working during the original
24 construction of the building, they would fall into that B
25 category, yes. B, for the vermiculite and chrysotile combined,

Lees - Cross/Wehner

102

1 yes. If they're an electrician that was disturbing this
2 material 20 years after the building was built and they were
3 doing some renovations or whatever, they would be in B, in that
4 final category, combined post construction.

5 Q The category combined post construction is not Grace
6 products though, those aren't Grace measurements?

7 A It's -- they may have included Grace products, it was just
8 everything was present in the building.

9 Q You don't know.

10 A I don't have specific knowledge, that's correct.

11 Q You don't have specific knowledge of what products were
12 around in those Grace -- in those post construction
13 measurements you just referred to, right?

14 A They were -- yes, they were multiple products of unknown
15 origin.

16 Q That is, you don't know whose products they were.

17 A Some could have been Grace, in some instances.

18 Q Some could have but we don't know. In Category B, you did
19 not located any historical air samples for Category B exposures
20 to Grace products in the vermiculite and chrysotile sprayed
21 category, right?

22 A That's correct.

23 Q Category C, personally installed Grace products, when you
24 found a measurement that was associated with a helper, you put
25 that into Category C, is that correct?

Lees - Cross/Wehner

103

1 A That's correct. The helper would be standing right next
2 to the spray applicator in most instances.

3 Q And, cleanup workers you also put into C?

4 A Usually it was the helper who did the cleanup as part of
5 his job.

6 Q Now, the PIQ itself doesn't clearly define Categories D
7 and E, does it?

8 A No, it does not.

9 Q You treated measurements from outside the walls of the
10 building or site, I'm sorry, outside of the walls, I think you
11 said, in your direct testimony, where the product was being
12 applied --

13 A Of the workspace, I think is the words --

14 Q -- of the workspace, but outside that area, but still on
15 the site was Category D measurement, right?

16 A That's correct.

17 Q And measurements from inside the walls where the
18 application or installation was taking place, you treated as
19 Category E, right?

20 A That's correct.

21 Q And, you made up those definitions yourself?

22 A That's true. They are vague terms that I created my own
23 specific definitions and included in the report, in order to
24 put the data in the correct bucket.

25 Q You don't have any idea if the respondents to the PIQ

Lees - Cross/Wehner

104

1 interpreted D and E the same way as you, do you?

2 A You know, I don't have any idea how the respondents to the
3 PIQ would interpret these, you know, the definitions as
4 presented. I've told you my definition.

5 Q Staying with the vermiculite and chrysotile category that
6 we've been talking about, you were able to extract from the
7 historical reports that you found, some measurements to put
8 into D and E categories, is that correct?

9 A That's correct.

10 MR. WEHNER: John, let's bring up ACC/FCR-2084,
11 please.

12 Q And, let's go into the seventh page of that exhibit. Dr.
13 Lees, again, this is in your binder under 2084, if you want to
14 look at this on paper. You can find the page that is now on
15 the screen there.

16 A Okay. Could you help me out with what the page number is?

17 Q If you go to the Tab 2084, and then you go seven pages in,
18 you should find it.

19 A Okay, I have it.

20 Q You got it? Do you recognize this as your working
21 spreadsheet on which you collected B and E measurements as
22 reported in the historical studies for vermiculite and
23 chrysotile spray?

24 A It looks like it, yes.

25 Q This spreadsheet is where you collected the D measurements

1 and E measurements that you found, right?

2 A Yes.

3 Q Now, I recognize that later you subject these measurements
4 to some adjustments, you add some adjustment factors, but these
5 are the numbers that you pulled directly out of the historical
6 studies, is that right?

7 A That's correct.

8 Q That first column under D, site, do you see that column?

9 A Yes.

10 Q That's the -- why don't you make that a little bit bigger,
11 John, so we get all of them in there. That column. There you
12 go. That's all of the measurements that you found in the
13 historical studies that related -- that you categorized as
14 measurements that were made D at a site, is that right?

15 A Yes.

16 Q There's nine of them, right? These are nine air samples?

17 A Yes.

18 Q Apart from these nine, there are no other historical
19 measurement of D sites?

20 A Not that I'm aware of.

21 Q If we look at the fourth through the seventh measurements
22 down, it begins 0.024, down to 0.015, do you see those
23 measurements?

24 A Yes.

25 Q Those measurements were all taken one to two blocks away

Lees - Cross/Wehner

106

1 from the construction site where Monokote III was being used,
2 is that correct?

3 A I'm not exactly certain of the distance, but they were in
4 the vicinity, let's put it that way.

5 Q These measurements were taken at the Hilton Towers in San
6 Francisco, is that correct?

7 A Yes.

8 Q And, one of them was taken, that first one, 0.024 was
9 taken in a parking lot on Leavenworth Street, do you see that?

10 A Yes.

11 Q Do you know how many blocks Leavenworth Street is from the
12 Hilton Towers?

13 A I do not. It's a long street I imagine.

14 MR. WEHNER: Let's put up the map of San Francisco.

15 Q Take a look at the screen, Doctor. We've got the Hilton
16 Towers there, can you see it there on O'Farrell Street and
17 Taylor Street? If you look at your screen, you'll see the map.
18 Do you see the map there?

19 A Yes, I do. And I see the map here.

20 Q Oh, you've got the map in the materials.

21 A Yes.

22 Q Okay.

23 A Yes, okay, I see it, yes.

24 Q And, there's Leavenworth Street, do you see Leavenworth
25 Street over two blocks away?

1 A Yes, I do.

2 Q So, the measurement that you've got back in your
3 spreadsheet, why don't we switch back to the spreadsheet, John.
4 0.024 was taken two blocks from the site, is that correct?

5 A Two blocks upwind.

6 Q Two blocks upwind.

7 A That's correct. So, it would represent a background
8 sample.

9 Q Right. It's not at a site, it's two blocks away from the
10 site.

11 A And upwind, so it would represent the background fiber
12 concentration, not related to the application at this
13 particular site.

14 Q Right. Likewise, the next measurement down, stationary
15 sample downwind, do you see that? Second floor of a building,
16 Powell Street?

17 A Yes, I do.

18 Q That's a block away from the construction site.

19 A Downwind, yes.

20 Q Downwind. Then the next one down 0.077, you see that on
21 Leavenworth Street again, that's two blocks away, right?

22 A Another upwind sample.

23 Q Another upwind sample, two blocks away?

24 A Same place it looks like.

25 Q Same place. Next one down, it says roof of a parking lot

1 one block away, right?

2 A It's downwind.

3 Q So, these four samples aren't site samples, right?

4 A These, again, these represent the raw data that fit into
5 that bucket.

6 Q Into the D bucket, the at site bucket.

7 A Correct.

8 Q You put those into the at a site bucket, right?

9 A At this point, they're in, you know, having gone through
10 the 3000 or 2000 samples, what the subsequent processing of
11 these was you know, frankly, I just don't remember at this
12 point. This was -- there were a lot of calculations done.

13 Q You don't know whether you included these or not?

14 A You know, I don't recollect.

15 Q Let's go back to your July 31st report, ACC/FCR-532, John.
16 Let's go to Appendix G again, that's the vermiculite and
17 chrysotile spray category and let's go to the summary table at
18 72 to 74. Let's look at Page 73 specifically. Do you see that
19 page, Doctor?

20 A I do.

21 Q This is a page from your July 31st report, the summary
22 table, right?

23 A Yes.

24 Q Okay. The fourth entry down -- I'm sorry, the first batch
25 of entries there at the top, the first four lines, those are

1 the measurements that you used in your calculations from the
2 Hilton Towers, is that right?

3 A Could I see farther up on the top of this page?

4 Q Sure.

5 A And, the previous page where these columns are defined.

6 Q Okay. Let's go back down to 73. So, that first four
7 lines, those are the Hilton Towers measurements.

8 A Correct.

9 Q Okay. Area, that's your D measurements, right?

10 A These were the area measurements, yes.

11 Q These are the D measurements, the ones that go in the D
12 bucket, right?

13 A Areas would end up in the D.

14 Q Right. And, you go over area, PCM specified 0.220, I'm
15 sorry, 0.008 and that next column five, that's the number of
16 measurements you had, right?

17 A Yes, as I remember from the previous page, yes.

18 Q Right. So you used all five measurements from the D
19 category from the Hilton Towers, right?

20 A Just a minute, let me take a look back at --

21 Q At the spreadsheet we were just looking at?

22 A At -- again, this was one of 2000 samples that I worked
23 on, you know, a year ago at this point, so forgive me if the
24 details take a little time.

25 It shows back in 2084, in the raw data, it shows

Lees - Cross/Wehner

110

1 1,2,3,4,5,6,7 samples associated with that study, okay?

2 Q Which one are you looking at? Are you looking at this
3 page here?

4 A That's correct.

5 Q Okay.

6 A So, there are seven if I count correctly.

7 Q Right. The first one 0.016, that's from the Embarcadero
8 site, right?

9 A No, I believe these are all Hilton Towers sites. I
10 believe and, again, it's been a year since I looked at this
11 specific -- I believe that these seven samples are all
12 associated with the Hilton Towers. And that from this other
13 table that you showed me, five were carried forward in the
14 analysis and, again, without going to the spreadsheet and
15 looking at it, I would, reconstructing what I did, I would
16 think that I eliminated the upwind samples.

17 Actually, it's interesting looking at this, that the
18 upwind samples are all higher than the downwind samples.

19 MR. WEHNER: John, let's go to ACC/FCR-2084, I think
20 we're on it right now, but let's back up two pages. One more
21 page.

22 Q Doctor, I'd like you to take a look at the document you
23 have on your screen. It's also shown in ACC/FCR-2084.

24 A Yes.

25 Q That's a spreadsheet collecting the vermiculite and

Lees - Cross/Wehner

111

1 chrysotile sprayed measurements. You see that?

2 A Yes.

3 Q This one breaks down the various sites that came out of
4 the Tabershaw-Cooper report, you see that?

5 A I do, yes.

6 Q Okay. You see in the orange there, it says
7 Tabershaw-Cooper, Hilton Towers?

8 A Okay, yes, okay. I see.

9 Q And, there's five measurements, aren't there, under
10 background area?

11 A Right, for the Hilton Towers, that's correct, yes.

12 Q Right. And so you used all five of those measurements?

13 A Yes,

14 Q Okay. Thank you. Dr. Lees, there is substantial
15 variability of exposures within a job category, isn't there?

16 A Yes.

17 Q And, in fact, I'm sorry, John, can you put back up the
18 spreadsheet that we were looking at, 2084, the MK III, D & E
19 description of samples, sixth page in.

20 THE COURT: I'm sorry, what's the exhibit number?

21 MR. WEHNER: I'm sorry, it's 2084.

22 THE COURT: Okay, thank you.

23 MR. WEHNER: It's the one we were looking at before.
24 I realized I wasn't done. Have it? No, couple more pages in.
25 That's the one.

Lees - Cross/Wehner

112

1 Q Now, as I said before, let's zoom out so we can see the
2 whole spreadsheet. The D samples, these are the D samples that
3 you found, right?

4 A That's correct.

5 Q And, then the next column there under E, in a space --
6 let's do the whole column, John, please. These are all of the
7 measurements that you located in the historical studies that
8 are associated -- that you put in the E, in a space category,
9 right?

10 A That's correct.

11 Q Okay. And there are 1, 2, 3, 4, 5, 6, of those, right?

12 A Um hum, yes.

13 Q These are six air samples you found in the historical
14 studies for Monokote III.

15 A For these sites.

16 Q These are all -- these are it. This is all the data you
17 had, right?

18 A These are all the data, that's correct.

19 Q Now, the measurements vary about here, in E, in a space,
20 they vary by a factor of approximately 10 right?

21 A Roughly speaking.

22 Q All right. And could you zoom in on D --

23 A From the highest to the lowest is a factor of ten.

24 Q The highest to the lowest is a factor of ten. With D, can
25 you do all of D? Here, the highest to the lowest is a factor

1 200, right?

2 A Um -- I'm just trying to do the math. I believe that is
3 correct. There is one exceedingly low sample in that group of
4 samples. That makes the ratio very high.

5 Q 200?

6 A Yes.

7 Q There is substantial variability of exposures within a job
8 category, right?

9 A Yes. I stated that in my previous testimony.

10 Q In your work, apart from looking at the highest and lowest
11 readings, you did not conduct any statistical analysis of the
12 variability of the data you presented, did you?

13 A No. Again, I presented the average.

14 Q Right. You didn't calculate a standard deviation?

15 A No, I --

16 Q You didn't calculate confidence intervals?

17 A I did not.

18 Q And you didn't calculate any other measure of variation?

19 A I did not.

20 Q It would be standard practice to calculate those measures
21 if you were submitting the results to a peer review journal,
22 would it not?

23 A Not if it were part of a job exposure matrix. The average
24 is what is used in job exposure matrices and in a peer reviewed
25 journal, that's what would typically be seen.

Lees - Cross/Wehner

114

1 Q Dr. Lees, you testified in deposition as follows, did you
2 not?

3 "Q What would be the conditions under which in
4 submitting your work --

5 MR. McMILLAN: I'm sorry, what's the page?

6 MR. WEHNER: Deposition Page 131, line 19 to 132,
7 line 5.

8 Q Dr. Lees, you testified as follows, did you not?

9 "Q What would be the conditions under which in
10 submitting your work for publication to the profession, that
11 you would not calculate a standard deviation and the results?
12 And by results I mean, readings?

13 You answered:

14 "A You know, it would not be unusual, maybe even
15 standard, to calculate the standard deviation."
16 That was your testimony, correct?

17 A And, --

18 Q That's what you said.

19 A That is what I said. And that is correct for many
20 industrial hygiene publications, in which the purpose of the
21 data is to portray the distribution or such that would be
22 typical practice. It, however, is not typical practice when
23 publishing data that are to be used in a job exposure matrix
24 that is going to be used for an epidemiologic study.

25 Q Dr. Lees, in your report you -- in your testimony on

Lees - Cross/Wehner

115

1 direct you reported measurements made using -- sorry. Did I
2 leave off in the middle of my question? I think I did.

3 THE COURT: Yes. In his report, he reported
4 measurements made using.

5 MR. WEHNER: Thank you, Your Honor.

6 Q You report measurements made using PCM techniques, right?

7 A The historic data were PCM data, that is correct.

8 Q And, I think as you explained, PCM stands for phase
9 contrast microscopy?

10 A That's correct. That's our own little acronym.

11 Q Right. It's a method of counting fibers using an optical
12 microscope.

13 A That's correct.

14 Q The OSHA threshold for asbestos are expressed in terms of
15 PCM measurements, are they not?

16 A The analytical method associated with the standard is
17 defined as PCM, that's correct.

18 Q Exposure measures used in asbestos risk assessment are in
19 PCM, are they not?

20 A The historical data that were used for the old
21 epidemiologic studies are PCM data, that is correct. These
22 data were collected at asbestos manufacturing facilities such
23 as textile mills.

24 Q Now, you've used a conversion factor developed by Dr.
25 Richard Lee, and you've applied those to the PCM measurements,

1 right?

2 A That's correct.

3 Q You get then what's termed a PCME measurement, is that
4 right?

5 A PCM, phase contract microscopy equivalent.

6 Q The conversion factors that you used were developed by Dr.
7 Richard Lee, right?

8 A He, under my direction, utilizing NIOSH standard method
9 7402, developed the correction factors. He did the mechanics,
10 yes.

11 Q Applying that conversion factor to the PCM values that you
12 reported, always has the effect of substantially reducing the
13 PCM value, does it not?

14 A That's correct because in the construction environment,
15 there are many non-asbestos fibers present.

16 Q Before the W.R. Grace bankruptcy litigation, you had never
17 used Dr. Richard Lee's conversion factors before, is that
18 correct?

19 A I don't believe that -- I can't recollect, let's put it
20 that way. No, I don't believe that I had.

21 Q In fact, you've never used PCM to PCME conversion factors
22 in your professional work prior to the W.R. Grace bankruptcy
23 litigation, is that correct?

24 A I don't believe I ever had a need to.

25 Q Dr. Lee's conversion factors have not been published in

1 the peer review literature, have they?

2 A Well, the methodology has been published as a peer
3 reviewed standard government method. So, I --

4 Q His specific conversion factors have not been published in
5 a peer review literature.

6 A No, and as they state in that method, that there is not a
7 standard conversion factor for all materials, there is, in
8 fact, the conversion factors are specific to different products
9 and uses, as stated in the method.

10 Q In fact, there is no generally recognized set of PCM to
11 PCME conversion factors for Grace products, are there?

12 A Again, they are specific to the -- there is no general
13 conversion factor, it is specific to the product.

14 Q Dr. Lees, you testified in deposition as follows, did you
15 not --

16 MR. McMILLAN: I'm sorry, what page?

17 MR. WEHNER: 75, lines 2 through 9.

18 "Q Is there any generally recognized set of conversion
19 factors with respect to Grace products that is generally
20 recognized in the field of industrial hygiene or exposure
21 assessment? Answer --

22 MR. McMILLAN: Your Honor, I object. He's reading
23 the witness's consistent statement, not an inconsistent
24 statement.

25 THE COURT: That's true. That is so. Sustained.

Lees - Wehner/Cross

118

1 MR. WEHNER: Let me -- if Your Honor would allow me
2 to finish reading the quote, it is not consistent.

3 THE COURT: All right. I'll hear the quote. I just
4 saw it on the screen, but it's not in the record. So, go
5 ahead.

6 "A I am unaware of any generally recognized conversion
7 factors for any product anywhere."
8 Is that your accurate testimony?

9 MR. McMILLAN: Your Honor, again, I think that's
10 consistent with what the witness just said.

11 THE COURT: Actually, the witness has never been
12 asked that question. The only question the witness has been
13 asked relates specifically to a particular set of standards
14 related to Grace products. He's never been asked on this
15 record about sets of standard for all products everywhere,
16 under any set of guidelines in any jurisdiction, period. So,
17 he's never been asked that question. You may lay a foundation
18 for that question, but the objection is sustained so far.

19 Q Dr. Lees, there is no generally recognized set, or any
20 generally recognized PCM to PCME conversion factor for any
21 Grace product, is there?

22 A Again --

23 THE COURT: I'm sorry, for my benefit, there is no --
24 would you repeat that? There is no generally recognized set of
25 PCM --

Lees - Wehner/Cross

119

1 Q There is no generally recognized PCM to PCME conversion
2 factor for any Grace product, is there?

3 A Again, the conversion factor is specific to a product in
4 use and it is calculated from the appropriate set of samples.

5 Q That's not really answering my question, Dr. Lees.

6 A Well, maybe I don't understand your question, then.

7 Q There is no generally recognized PCM to PCME conversion
8 factor for any Grace product, is there?

9 A Not to be a nitpicker here, but can you define for me what
10 generally recognized means, in that the methodology used to
11 calculate these conversion factors, is generally recognized, is
12 generally accepted, it is an official U.S. government standard
13 method. So, the methodology is absolutely recognized. The
14 factors that are converted, or calculated using this method are
15 a function of whatever set of data that they are used for, or
16 whatever product, if you will, and use. So, that there is --
17 yes, they're very specific and not general in nature.

18 Q Dr. Lee calculated that conversion factor, right?

19 A Yes. Those conversion factors. I believe there are eight
20 separate ones.

21 Q He, that is Dr. Richard Lee, didn't look them up in some
22 kind of book.

23 A Oh, that's correct, yes.

24 THE COURT: When you say calculate, I'm sorry, you
25 mean he designed them. Is that what you're trying to say? I

Lees - Wehner/Cross

120

1 mean, it was his work product. Those factors were his work
2 product.

3 MR. WEHNER: It was his work product, exactly, Your
4 Honor, right.

5 THE WITNESS: He analyzed the samples that I
6 specified to him. He analyzed the samples by phase contrast
7 microscopy and transmission electron microscopy as prescribed
8 by this standard method and did the arithmetic to calculate the
9 conversion factors.

10 THE COURT: Oh.

11 Q He had to use his judgment to determine what the
12 appropriate conversion factor was.

13 A No, no. Absolutely not. The conversion factor falls out
14 of the data. The data tell you what the conversion factor is.

15 Q You didn't do that work, though?

16 A No. I am not a microcopist. I didn't --

17 Q Dr. Richard Lee did that work.

18 A I'm not a microcopist. I'm sorry. I'm not a microcopist,
19 I did not look at the samples and count fibers. That what Dr.
20 Lee did.

21 MR. WEHNER: Your Honor, I'd move to strike any of
22 his direct testimony that relates to PCME data or conversions
23 or the results thereof.

24 MR. McMILLAN: Your Honor, the witness on the stand
25 just established the record for how he was the one who directed

Lees - Wehner/Cross

121

1 that the method be applied. Directed the samples that would be
2 applied to, and that what Dr. Lee did was arithmetic
3 essentially at his direction.

4 THE COURT: Well, yes, he also said that he didn't do
5 the work that went into the actual calculation nor has he
6 testified to the actual calculation, but he has certainly
7 explained the use of that calculation with respect to this
8 data. I think the witness has testified well within his area of
9 expertise. He has not testified to the factors, he's stayed
10 well away from the factors and, in fact, when I asked the
11 question about work product, was pretty quick to explain that
12 that's, in fact, not what the correct approach was. So, I
13 think the witness has testified within his area of expertise.
14 I don't see a basis to strike his direct testimony now that the
15 cross examination has been completed. So, I'll stay with the
16 original ruling. The objection is overruled.

17 Q Dr. Lees, you haven't in your work here in this case
18 analyzed whether any of the chrysotile asbestos W.R. Grace used
19 had tremolite asbestos in it, did you?

20 A Whether any of the chrysotile had tremolite?

21 Q Whether the chrysotile had any tremolite in it. That's
22 not part of your work in this case.

23 A That's not part of my work, no, no.

24 MR. WEHNER: Give me just a moment, Your Honor.

25 (Pause)

1 Q Dr. Lees, you have not analyzed whether any chrysotile
2 that Grace used in its products that came from Canada had any
3 tremolite in it, is that correct?

4 A I have no knowledge of sources of both chrysotile. As I
5 said, all I have is the results of the phase contrast
6 microscopic analyses of exposure.

7 Q And, Dr. Lee --

8 A Lees.

9 Q Let's not get confused.

10 A Yes.

11 Q Dr. Lees, the products that are in the vermiculite and
12 chrysotile categories, all the products that you put into that
13 group, you don't have any idea how many construction sites at
14 which those products were used, right?

15 A I have no specific number to give you, no.

16 Q You don't know how many sites at which Monokote III was
17 used?

18 A I remember hearing estimates or speculations, but I
19 frankly don't remember that number and it's really irrelevant
20 to what I did.

21 Q To what you did?

22 A That's correct.

23 Q And Zonolite high temperature cement, you have no idea how
24 many sites at which that product was used, do you?

25 A I don't, I do not.

Lees - Cross/Rasmussen

123

1 MR. WEHNER: Thank you, that's all I have.

2 (Pause)

3 MR. RASMUSSEN: Thank you, Your Honor. I'm Garrett
4 Rasmussen for the Future Claimants.

5 CROSS EXAMINATION

6 BY MR. RASMUSSEN:

7 Q Good afternoon, Dr. Lees.

8 A Good afternoon.

9 Q Dr. Lees, I want to ask you this afternoon about two basic
10 topics. The first topic is whether you accurately calculated
11 the exposure averages that you actually used and second, is
12 whether it was proper to use average exposures for the purpose
13 of excluding individual claimants. Let's start with the first
14 one. And, I will be referring from time to time to your July
15 expert report which you already have in front of you in that
16 binder that's Exhibit 533, but when I do, I'm actually going to
17 just be referring to two tables which I will put up on the
18 screen when I do.

19 A Okay.

20 Q I'll also be referring to two of the underlying studies to
21 pick up the exposure values and I'll just also be referring --
22 showing you those portions of those underlying studies at that
23 time. I have the complete studies, so if you'd like to look at
24 them at that time, just speak up.

25 A Okay.

Lees - Cross/Rasmussen

124

1 Q Okay. And I have a calculator here because I have some
2 questions which may require a recalculation if there are
3 different assumptions. So, do you have your own calculator, or
4 would you --

5 A I do not.

6 Q If you need to use it any time, feel free to just ask and
7 I'll put it out here.

8 A Okay.

9 Q Now, Dr. Lee you sought --

10 A Lees.

11 Q I'm sorry, Dr. Lees.

12 A I've had that problem my whole life. It's a reflex, I'm
13 sorry.

14 Q Okay. No, my fault. You sought to calculate the average
15 asbestos exposures that could reasonably be applied to the
16 workers who were placed in each of the PIQ categories, isn't
17 that right?

18 A Yes.

19 Q And to accurately calculate the exposure levels for each
20 of those PIQ categories, the exposure levels should be derived
21 from studies of exposures of individuals who had jobs that fall
22 within the description of the relevant PIQ categories, isn't
23 that right?

24 A I think I follow you, yes.

25 Q So, first --

1 A So, what you're saying is that within Category A, that it
2 should be mixers.

3 Q Right. The exposure studies that you used should match
4 the PIQ categories in order to be useful.

5 A Correct.

6 Q Okay. So, I first want to examine the exposures you
7 calculated for two categories, Category C which is the category
8 for someone who personally mixes -- excuse me, personally
9 installs the Grace asbestos product and that's one of the ones
10 that Dr. Anderson includes in her calculations and then for one
11 of the ones that's excluded which is Category E, which is all
12 the people in the space, okay?

13 A Okay.

14 Q Okay. Now, looking at your July report, let's look at
15 Table 3, which we'll put up on the screen, Tom. And on the top
16 you have A, B, C, D and E and those refer to the PIQ
17 categories, isn't that right?

18 A That's correct.

19 Q Okay. And, you have two Category C's, two columns for
20 Category C, a sprayer and a hod carrier helper, right?

21 A There were two job titles within the Category C, that's
22 correct.

23 Q Okay. And job Category C, again, is a worker who
24 personally installed Grace asbestos containing products, right?

25 A Yes.

1 Q Okay. Now, the sprayers, obviously, didn't personally
2 install Grace products, so I don't have any quarrel with you on
3 that one, but let's talk about the hod carriers and the
4 helpers. Now, hod carriers do such things as pushing mobile
5 scaffolds and cleaning up over spray from the floor, isn't that
6 right?

7 A Amongst other duties, yes.

8 Q And, what are some of the other duties?

9 A Oh, they would move the hose, you know, assist in cleaning
10 jams, things like that.

11 Q And a hod carrier is just another expression for helper,
12 isn't it?

13 A Yes. A hod carrier is really left over from the masonry
14 trades. The hod carrier was the guy who carried the mortar to
15 the brick mason. But you're right, they're helpers.

16 Q And, one of your studies, I think the State of Washington
17 study, which is one of the studies you list for hod carriers,
18 describes what these helper hod carriers do. Let's see if we
19 can find on Page 3, they move hoses, described as helper moves
20 hoses and mobile scaffolds, cleaning up over spray from the
21 floor, do you see that?

22 A Yes.

23 Q And, you agree with that definition?

24 A Yes, yes.

25 Q Okay. Now, a person, Dr. Lees, who moves scaffolding and

Lees - Cross/Rasmussen

127

1 cleans up over spray does not personally install Grace asbestos
2 products.

3 A Well, it's -- all of this is part of the installation
4 process and for every sprayer there was, attached at the hip,
5 there was a helper who did the associated support activities,
6 if you will.

7 Q Right. But you counted those helpers as if they
8 personally installed.

9 A Because they were standing right next to the installer and
10 were part of the installation process. Their activities
11 contributed to the installation process, yes.

12 Q If we could go back to Table 3 from your July report,
13 which is Exhibit 532. The PCM observations or measurements
14 that you've calculated from your studies show considerably
15 higher exposures for the sprayers than for the hod carrier
16 helpers, isn't that right?

17 A It is higher.

18 Q So, even though they were standing right next to each
19 other, they were getting different exposures?

20 A On average, that's correct.

21 Q And, isn't it true, Dr. Lees, that a hod carrier or helper
22 filling out a PIQ, might have placed himself in Category E,
23 which is the category for a worker in a space where Grace
24 asbestos containing products are being installed?

25 MR. McMILLAN: I'm going to object, that calls for

Lees - Cross/Rasmussen

128

1 speculation. It is beyond the scope of what Dr. Lees did in
2 this case.

3 THE COURT: Well, I'm not sure it's beyond what Dr.
4 Lees did, he may not know, but I don't think it's beyond what
5 he's entitled to know as an expert. Overruled. You can answer
6 if you know, Dr. Lees.

7 THE WITNESS: Again, I mean I can't put myself in the
8 head of a respondent. I don't know how they would have
9 responded. What I have -- this was my interpretation and I've
10 explicitly stated that it's so.

11 Q Right. And you didn't look at any completed PIQ's to see
12 how helpers actually did classify themselves, did you?

13 A I did not review any of the PIQ's, that's correct.

14 Q Did you talk to any of the people from Exponent who
15 categorized workers who did not self-designate in one of the
16 categories and see how they placed helpers?

17 A I had general descriptions with discussions with them, but
18 not about this particular topic.

19 Q Okay. Assume with me for a moment that all the hod
20 carriers and helpers put themselves in Category E, which is a
21 worker in a space where Grace asbestos containing product is
22 being installed, and if that had happened, then you should have
23 put your exposure measurements for hod carriers into Category E
24 as well, shouldn't you?

25 A If that's how they self-designated, it would have been

1 appropriate for me to put move that column over to the E.

2 Q Because otherwise your exposures for Category E wouldn't
3 have matched the people that were in Category E.

4 A There -- again, as I say, what I presented here was my
5 interpretation of the job and what category it fit into. I
6 will give to you that other people could have varying
7 interpretations.

8 Q Now, Dr. Lees, if any of the hod carriers and helpers put
9 themselves in Category E when they filled out the PIQ, then the
10 average exposure you calculated for Category E would not
11 accurately reflect the exposures of the hod carriers and
12 helpers who put themselves in Category E when they filled out
13 the PIQ, isn't that right?

14 A I believe I follow you and if that were to be so, you
15 would be correct.

16 Q And, you can tell by looking at Table 3 that if you had
17 added the hod carrier helper exposures into Category E, that
18 would increase the average exposure calculations for Category
19 E?

20 A Yes.

21 Q In order to determine the significance of that increase in
22 the exposure level on Category E, I want to first examine the
23 methodology of how you got your averages and then recalculate
24 it by putting the hod carrier helper exposures back into
25 Category E and seeing what we end up with as the exposure,

1 okay?

2 A Okay.

3 Q So, when you calculated your average exposure for Category
4 E, you were relying on three studies. The Tabershaw-Cooper
5 1970 study for Embarcadero, right? First one.

6 A The ones that are listed there, yes.

7 Q And, the second one was also from Tabershaw-Cooper 1970,
8 but that's the PG&E Building, also in San Francisco, correct?

9 A That's correct.

10 Q And, the third one was the Utah State Division study,
11 right?

12 A Oh, you're looking at the E's. That's correct, yes.

13 Q So you had three studies for those, using only three
14 studies?

15 A Yes.

16 Q Okay. Now, let's -- but some of those studies had more
17 than one observation, correct?

18 A As I remember, yes.

19 Q So, I want to show you and ask you to look at the
20 Embarcadero study, which is the first study, and I will, if I
21 may, Your Honor, approach the witness, give him a copy of the
22 study, also give you a copy of the study and ask that it be
23 marked for identification as Claimants Exhibit 3005.

24 Now, if we turn to Table 1 of that exhibit, we have the
25 actual measurements that were made at the Embarcadero Building,

1 isn't that right?

2 A Yes.

3 Q And, there were a total of eight measurements.

4 A That's correct.

5 Q The first four are the ones that you put into Category C,
6 isn't that right, which is the personally installing Grace
7 products?

8 A Yes.

9 Q In other words, the first three are sprayers, but the
10 fourth one isn't a sprayer at all, is it?

11 A He's a stage mover, he's a helper.

12 Q A stage mover. And a stage mover doesn't personally
13 install Grace products, does he?

14 A Again, he is part of the team that installs.

15 Q Now, the next exposure is the area near the spray, one to
16 fifty feet distance. And this is the exposure that you
17 included in Category E and, indeed, it's the only exposure you
18 included in Category E from this study, isn't that right?

19 A I believe that's what it said, yes.

20 Q So, based on a single observation, you concluded that the
21 average exposure of a person in a space where asbestos is being
22 installed at the Embarcadero Center, had an exposure of .023,
23 we can see that if we go back to Table 3, and that's .023,
24 right?

25 A Correct.

1 Q And, it's slightly lower than the number we just saw
2 because you applied that ratio of 6.6 over 8 which is a 82.5
3 percent ratio.

4 A Right. This sample that measured 0.30 fibers per cc was
5 conducted during active work. And the workers don't work,
6 actively spray eight hours a day and so we used the observation
7 that on average workers, sprayers, worked 6.6 out of eight
8 hours. So, that's the eight hour time weighted average
9 calculated from this number, correct.

10 A Okay. And then to get the exposure average for the entire
11 Category E, you averaged the .023, the .110 and the .138, isn't
12 that right?

13 A That's what the procedure would be, yes.

14 Q And, then you reported that on your table for A in the
15 same exhibit?

16 A I believe that's where it would end up, yes.

17 Q Okay. Can we look at Table 4, Tom? Table 4, and again as
18 you mentioned on direct, you did the averaging two ways,
19 stratified and non-stratified, but for the focus on the
20 stratified, you get the average of .090, correct, for the
21 Category E?

22 A That's the number that is presented there, yes.

23 Q And, that's the number that you presented to Dr. Anderson
24 for her analysis?

25 A That was part of the data that I presented to her, yes.

Lees - Cross/Rasmussen

133

1 Q And, that number excludes the hod carriers and helpers,
2 doesn't it?

3 A Right, because I classified the hod carriers and helpers
4 as part of the spray application team.

5 Q Okay. Now, I want to recalculate it by putting them back,
6 but before I do, I want to ask you about one other measurement
7 observation in the Embarcadero study. So, if we can go back to
8 the Embarcadero --

9 THE COURT: That study.

10 MR. RASMUSSEN: From a San Francisco firm, I should
11 know how to pronounce it, but I have trouble with it.

12 THE WITNESS: That place in San Francisco.

13 Q Yes. And let's look at Table 2 there. And, we've talked
14 about the three sprayers, the stage mover, the area --

15 A I'm sorry, you said Table 2?

16 Q Yes. This is the one that I have up here on the screen.

17 A Okay. Well, that's Table 1.

18 Q Oh, excuse me, you are right, Dr. Lees. Table 1, it has
19 the observations. So, we've talked about the sprayers, the
20 stage mover, the area near the spray, which you did put in
21 Category E, and then a background area which I believe you put
22 in Paragraph D. I have no dispute about that. But I do want
23 to ask you about the investigators B.Z. which is the next
24 measurement and I looked in your backup spreadsheets and I
25 couldn't find the investigator B.Z. exposure listed in any of

1 your categories.

2 A That's correct.

3 Q So, you excluded the investigator B.Z. from your
4 calculation of these exposure averages?

5 A The investigator was an industrial hygienist and not
6 doing, if you will, real work. Doing industrial hygiene work,
7 but no construction work. And so, the judgment was that what
8 the industrial hygienist was doing didn't represent any
9 construction workers exposure. So, for that reason, I excluded
10 it.

11 Q But the study itself actually described what the
12 investigator B.Z. was doing, didn't it?

13 A In part. In part.

14 Q It did. And I want to turn to that. That's on Page 2 of
15 the study in Paragraph 3 where it says -- let's go down a
16 little further at the bottom. Yes, there it is. It's hard to
17 read. Spraying -- it starts, "Samples were taken from" --
18 there we are. "Samples were taken from" -- and I think the one
19 we're talking about is "of the air in the breathing zone of the
20 investigator," right? That's the one we were referring to on
21 Table 1.

22 A D.

23 Q D, right. "Air in the breathing zone of the
24 investigator," right? And then come over to the next page
25 where it continues on, "as he moved around this spray

Lees - Cross/Rasmussen

135

1 operation," and then it says, "equivalent to the exposure which
2 might be experienced by a construction worker in the area."
3 So, whoever did the test thought that that measurement would be
4 the equivalent to a construction worker in the area and you
5 chose not to include that one.

6 A Typically, other construction workers were not in the work
7 area during spray operations. In fact, the decks were cleared.
8 Everybody got out of the way when the sprayers -- the
9 fireproofing sprayers did their work so that it was not a real
10 worker and, in my judgment and from my reading and discussions
11 with Grace employees that other construction -- I'm not saying
12 never, but it was just highly, highly unlikely that a
13 construction worker would ever wander through the site, and if
14 they did, they would only be there very, very quickly and they
15 would get out. So, that it was just a nonsensical, if you
16 will, measurement in terms of what -- it didn't represent
17 anything that was real.

18 Q Nonsensical or -- the person who actually took this study
19 described it as equivalent to the exposure which might be
20 experienced by it.

21 A To a construction in the zone, but what I'm saying is that
22 construction workers did not spend -- it was rare for a
23 construction worker to enter the zone that -- the work area --
24 and if they were there, it would just be for a very, very, very
25 short period.

1 Q But, a helper was there, right?

2 A And I've classified the helper as an -- you know, as part
3 of the application team.

4 Q And a helper is a construction worker, isn't he?

5 A And he's included in my analysis as a --

6 Q Here we have another observation which is equivalent to
7 what a helper could've gotten on a site. And, in fact, let's
8 look at Table 1. It actually was much higher than the one you
9 did include, isn't -- wasn't it? It was .6 for the fiber
10 measured more than five microns, and you included the one that
11 was .028, a small fraction of the one you excluded.

12 A Again, it was excluded because it didn't represent real
13 work -- a real work situation or scenario.

14 Q You don't think it was within one to 50 feet distance from
15 where the spraying was going on?

16 A I don't know what the investigator was doing.

17 Q All we know from the investigator is that he thought it
18 would be equivalent to a construction worker, and we know that
19 a construction --

20 A If there were a construction worker there. And what I'm
21 saying to you is that other construction workers would not
22 typically be there.

23 Q No, but helpers would?

24 A I mean, everybody's a construction worker, okay?

25 Q Right.

1 A And the helper, again, I classified as part of the
2 application team, so -- and I've explicitly stated that I put
3 them in the C category.

4 Q But, do you agree with me that the more observations that
5 we can have of helpers within the range of the spraying the
6 more --

7 A I am a scientist who always would like more data.

8 Q And if we had included that .6 number and averaged it with
9 a .028 number, we would've gotten a -- you would've gotten a
10 much higher exposure level for Category E?

11 A It would've been a different number. I've described to
12 you the rationale that I use for excluding that sample.

13 Q Let's do the math and see what the different number would
14 be. First, we would have to take the .6, adjust it downward by
15 your ratio of 6.6, divide by 8, which you told me was 82.5
16 percent, and when I do the math I get .495. And I represent
17 that that's what the math is. Do you have any reason to doubt
18 it?

19 A You're the man with the calculator.

20 Q Okay. I did it ahead of time. I'm usually not so good.

21 (Laughter)

22 A Oh, okay. It's hard to do arithmetic under pressure,
23 believe me.

24 Q And then if I average the .495 that we just calculated
25 with a .23 that's -- let's go back to Table 3 from your July

1 report which is Exhibit 532 where you have that one
2 observation, .023. So, if I average the .495 with a .023, just
3 add them up and divide by 2, I'd get .259. Did I do the right
4 math? I didn't check.

5 A Again, you're the man with the calculator.

6 Q I represent that I did. So, what I want to do is take, if
7 I may use this ELMO, take a copy of Table 3. I want to correct
8 the .023. We'll change it into a .259, okay? And that's
9 simply if I -- if you had used that .6 observation from the
10 inspector, but who the study person said it was equivalent to a
11 construction worker. And now, to get the --

12 THE COURT: Actually -- pardon me, but the study
13 doesn't say that. It says, "Equivalent to the exposure which
14 might be experienced by a construction worker in the area."
15 There's nothing that indicates that there is a construction
16 worker in the area, and there's nothing that says that this
17 investigator is there eight hours a day doing the same work,
18 repetitiously, for eight hours.

19 Q But, none of these -- Dr. Lees, none of these studies are
20 based on staying there eight hours and measuring the exposure
21 over an eight-hour period, are they?

22 A These are not eight-hour samples. That's correct.

23 Q All of these samples are just at one moment, correct?

24 A No, no, no. They are over a period of time.

25 Q But, not the eight-hour day?

Lees - Cross/Rasmussen

139

1 A Not an eight-hour day. Less than an eight-hour day.

2 Q And my point, Dr. Lees, is that a -- although there was no
3 helper actually standing where that inspector was, that
4 inspector was standing in an area where a helper could
5 reasonably be expected to be.

6 A No, I don't know that. The report is not very explicit on
7 that point.

8 Q Okay. If we --

9 A It's your assumption.

10 Q Okay. And if that -- and it was an actual measurement
11 taken at the site near the spraying? It was an actual
12 measurement, right?

13 A It's an actual measurement. That's correct.

14 Q Okay. So, if I use that new .259, and if you had used it
15 and then averaged it with the .110 and the .138, you would've
16 gotten a new average of .1690, correct?

17 A Again, you're the man with the calculator.

18 Q Okay. And now -- and there could be some debate, then,
19 about whether we -- you should've or shouldn't have done that,
20 but I just wanted to show the effect if you had. Now, let's
21 turn, then, to the hod carriers.

22 THE COURT: Could you -- can you read, please, so I
23 understand exactly what you're doing, I cannot read the entire
24 paragraph on the bottom of Page 1 of this exhibit that says
25 "Embarcadero Center May 26th, 1970."

Lees - Cross/Rasmussen

140

1 MR. RASMUSSEN: Right.

2 THE COURT: So, could you read it for me, please --

3 MR. RASMUSSEN: Yes.

4 THE COURT: -- so that I understand this because it

5 seems to me that what I can read says there were no hod

6 carriers, and then I can't read the rest. So, it seems to me

7 that this report is saying that there were no helpers in this

8 area at the time. That's what I can make out of this.

9 "Spraying was being conducted on the 41st floor of the 43-story
10 building."

11 MR. RASMUSSEN: Right.

12 THE COURT: I can't make out the next number of
13 words.

14 MR. RASMUSSEN: Let's go back to the slide that has
15 the Embarcadero Center.

16 THE COURT: It's Exhibit 3005, the first page at the
17 bottom, please.

18 UNIDENTIFIED SPEAKER: This is the ELMO.

19 THE COURT: I just need to understand what you're
20 doing, and I'm not -- I understand the questions, but I don't
21 understand the purpose. Okay. "Spraying was being conducted
22 on the 41st floor of the 43-story building."

23 MR. RASMUSSEN: Right.

24 THE COURT: The --

25 MR. McMILLAN: "Three men at work at this site" --

Lees - Cross/Rasmussen

141

1 THE COURT: "At this site were all plasterers. There
2 were no hod carriers."

3 MR. McMILLAN: Period. "The plasterers" --

4 THE COURT: "Moved their own stones"?

5 MR. McMILLAN: "Stages."

6 THE COURT: "Stages." Okay. "But, did not clean" --

7 MR. McMILLAN: "Clean the area" --

8 THE COURT: "As they worked."

9 THE WITNESS: "The floor of the work site was covered
10 with -- to an estimated depth of two inches with rebound and
11 oversprayed fireproofing materials."

12 THE COURT: "The gun from which the material was
13 being applied was being operated at a relatively higher flow
14 rate resulting in considerable rebound" --

15 THE WITNESS: Period.

16 MR. RASMUSSEN: Okay. And then, "Samples were taken
17 of the air in the breathing zone," B.Z., "of the gun operator,
18 and the man moving the stage," -- it's the man moving the stage
19 which was on the Table A -- excuse me -- Table 1 on the next
20 page is the -- that's the .0230.

21 THE COURT: Okay. "The man moving the stage from
22 which the operator" --

23 MR. RASMUSSEN: "The operator" --

24 THE COURT: -- "was working" --

25 MR. RASMUSSEN: Right.

Lees - Cross/Rasmussen

142

1 THE COURT: -- "b) of the area -- in the area
2 surrounding the spray operation, c) of the air moving through
3 the 43rd floor (two floors above the spray operation), d) of
4 the air in the breathing zone of the investigator as he moved
5 around the spray operation (equivalent to the exposure which
6 might be experienced by a construction worker in the area), e)
7 of the air in the breathing zone of the mixer operator working
8 on the ground floor, Table 1." Okay. Thank you.

9 MR. RASMUSSEN: Okay. So, all I've done, Your Honor,
10 is, we know that the stage mover was included in Dr. Lees'
11 calculation.

12 THE COURT: Yes. I see what you're doing now.

13 MR. RASMUSSEN: Okay.

14 Q So, if -- now I want to do -- now what I want to do is see
15 the effect of adding the hod carriers' exposures or the --
16 which are the -- another word for the stage movers --

17 THE COURT: To Category E.

18 MR. RASMUSSEN: -- into Category E and see --

19 THE COURT: Yes.

20 MR. RASMUSSEN: -- what the effect of that would be.

21 Q So, can we go back to Table 3 of Exhibit 533? And to get
22 the average for the hod carrier helpers using the PCM number,
23 we add up that column, 1.279, .16, .272, and .136, right?

24 A An average.

25 Q An average. And when I do that I get .451 which I'll

Lees - Cross/Rasmussen

143

1 write down here on my copy of Table A on the ELMO.

2 MR. McMILLAN: Your Honor, I'm going to object that
3 Mr. Rasmussen is testifying and doing math, and the witness is
4 not even agreeing with the calculation or the movement of the
5 samples that Mr. Rasmussen is doing.

6 THE COURT: Well, I'm not sure. If somebody has a
7 disagreement with the math, I suppose -- including the witness,
8 we should have somebody do it. I think you can --

9 MR. McMILLAN: It's not the math, Your Honor. It's
10 whether or not it's appropriate to do it in the first place.
11 And the witness hasn't been agreeing with Mr. Rasmussen, but
12 he's still doing his own calculations.

13 THE COURT: Oh. I see what you're saying. That
14 the -- whether or not the movement into Category E is
15 appropriate is the issue.

16 MR. McMILLAN: Right.

17 MR. RASMUSSEN: Well, Your Honor, he did testify that
18 if hod carriers, and if --

19 THE COURT: Yes.

20 MR. RASMUSSEN: -- helpers put themselves in E, then
21 it would've been appropriate.

22 THE COURT: Yes, but so far there were no hod
23 carriers in this study, and we've just confirmed that because
24 my reading indicated that there were none.

25 MR. RASMUSSEN: No, the reading, Your Honor, if I'm

Lees - Cross/Rasmussen

144

1 asked, Dr. Lees indicated there was one hod carrier which was a
2 stage mover, isn't that right, Dr. Lees?

3 THE COURT: Oh, no. I'm sorry. I was talking about
4 this report where you were -- there were -- it says here,
5 "There were no hod carriers." It says that right in the
6 report. "There were no hod carriers, but there was a stage
7 mover."

8 MR. RASMUSSEN: But, hod carriers and helpers are
9 both in the same category which we call hod carriers/helpers.

10 THE COURT: Okay.

11 MR. RASMUSSEN: Okay.

12 MR. McMILLAN: But, Your Honor, he has not been --
13 the witness has not been shown any person who identified
14 themselves as a person in the area who was a hod carrier. This
15 is purely a hypothetical.

16 THE COURT: That's true.

17 MR. McMILLAN: The witness has not agreed that
18 there's any person who ever did that, or that he's aware of any
19 person who would've done that.

20 THE COURT: But -- that's true, but this study was
21 conducted in 1970, and as a result, this study, as I understand
22 it, would not have been based on someone who filled out a PIQ
23 anyway. And the question that I think Mr. Rasmussen asked was
24 whether, if someone had filled out a PIQ and identified himself
25 as a hod carrier, and the witness had not put that person into

Lees - Cross/Rasmussen

145

1 the PIQ in Category E, the results would've been different and
2 the witness said, "Yes." So --

3 MR. McMILLAN: But, the witness is not putting any
4 individual in any category. All the witness is doing is
5 categorizing data into different exposure.

6 THE COURT: I agree. And in any event, this person,
7 whoever the stage mover was in 1970, would not have filled out
8 a PIQ in any event, so --

9 MR. RASMUSSEN: But, we're using your studies, Dr.
10 Lees, to get some exposures averages which are then going to be
11 applied, Your Honor, to the claimants in this case.

12 THE COURT: Yes.

13 MR. RASMUSSEN: None of whom were on that site at the
14 date to the best we know of, but he's using them. And Grace is
15 using them to get their exposures.

16 THE COURT: Grace is defining certain categories and
17 you're disagreeing with the method by which -- or with the
18 categories the way Grace has defined them. But, I thought the
19 disagreement, as I understood the initial question, was that
20 based on the way that the individuals who are the known
21 claimants in this case have filled out the PIQs.

22 MR. RASMUSSEN: Right.

23 THE COURT: That this witness who didn't look at the
24 PIQs, has made, in your view, a mistake because the PIQs would
25 identify certain people who put themselves in the categories

Lees - Cross/Rasmussen

146

1 that you would say, or they would say, let me say it that way,
2 were Category E.

3 MR. RASMUSSEN: Right.

4 THE COURT: But, this witness, based on his
5 interpretation of the data, put them into Category C.

6 MR. RASMUSSEN: Right.

7 THE COURT: Okay. So, what I thought you were
8 getting to was that if Category C data should've been in
9 Category E data, the calculations would've changed.

10 MR. RASMUSSEN: Correct.

11 THE COURT: Okay. But, what does that have to do
12 with this study?

13 MR. RASMUSSEN: The study just gives us the exposures
14 that Dr. Lees uses to come up with the exposures --

15 THE COURT: The numbers that are applied.

16 MR. RASMUSSEN: -- for Category E.

17 THE COURT: So, you're saying that --

18 MR. RASMUSSEN: The average exposure.

19 THE COURT: So, you're saying that first you want to
20 identify the percentage that ought to be applied to Category E
21 overall, and then you're going to get into why the category was
22 malformed?

23 MR. RASMUSSEN: I'm not saying anything about how it
24 was formed or not formed. I'm just saying that -- the only
25 question I asked him was that if current claimants are -- who

Lees - Cross/Rasmussen

147

1 are either hod carriers or helpers moving scaffolding or moving
2 hoses or cleaning up, actually put themselves in Category E
3 which is the category for being --

4 THE COURT: Right.

5 MR. RASMUSSEN: -- in a space. And if they did
6 that --

7 Q -- and is it your testimony, Dr. Lees, that these studies,
8 because they were taken in 1970 and didn't involve any
9 claimants, are not useful information to assess the average
10 exposures of the actual claimants? Is that your testimony?

11 THE COURT: Wait. Pardon me. I'm addressing an
12 objection.

13 MR. RASMUSSEN: Right.

14 THE COURT: You can't put a question to the witness.
15 You're addressing me. So, your argument is to me.

16 MR. RASMUSSEN: Okay.

17 THE COURT: That's not the question you asked the
18 witness and that's not the evidence that's before the Court.

19 MR. RASMUSSEN: Then to you. It's my understanding,
20 Your Honor, that what Dr. Lees is doing and what Grace is
21 doing, is taking Dr. Lees' exposures derived from historical
22 reports from people that are not claimants calculating an
23 average exposure for each of these categories, and then when
24 Dr. Anderson comes here on Wednesday she's going to look at the
25 average exposures that Dr. Lees calculated, and she's going to

1 say they're lower than some benchmark and, therefore, exclude
2 the whole category of claimants in Category E even though those
3 claimants aren't the same people for whom the exposures are
4 calculated.

5 THE COURT: Okay. So, you're -- what you're --
6 you're going through this exercise without having laid the
7 foundation from this witness, I think, that indicates that he
8 would agree with your proposition -- at least if you did, I
9 missed that question -- that these -- that at least the stage
10 manager should've been included in Category E and wasn't on his
11 report.

12 MR. RASMUSSEN: The stage manager was included.

13 THE COURT: Okay. Then where are we missing somebody
14 from his report --

15 MR. RASMUSSEN: Excuse me. You are right. The
16 stage -- the one person -- well, there's one stage manager that
17 wasn't included. We put that one to the side. That was the
18 person that got us up to .259. But, the hod carriers and
19 helpers that he put in Category C, I'm saying that they --

20 THE COURT: But, we're dealing with this report.
21 You're asking him to change the numbers based on your
22 calculations of this report because he doesn't have all of the
23 people in Category E from this report who should be -- this
24 report being Exhibit 3005, who should be in Category E. And
25 you haven't yet established with him that there is somebody who

Lees - Cross/Rasmussen

149

1 should be in Category E who isn't, based on this exhibit.

2 MR. RASMUSSEN: Right. Let's put that exhibit aside.
3 Let's turn back to Table 3 of his exhibit -- of his report --
4 Table 3 of Exhibit 3530 --

5 THE COURT: Two.

6 MR. RASMUSSEN: -- 532 on the ELMO, and

7 UNIDENTIFIED SPEAKER: Turn off the ELMO.

8 MR. RASMUSSEN: Turn off the ELMO. Okay. And put on
9 Table 3, Tom. So, I prepared, Your Honor, for the purpose of
10 these questions, not to quarrel with him about the .23 and try
11 to put in a .6 there.

12 THE COURT: Right. I understand.

13 MR. RASMUSSEN: You could do that -- the only issue
14 that I have is whether he -- what would've happened if he had
15 moved his hod carrier helper exposures and didn't put them in
16 Category C which is supposed to be for people who actually
17 personally install, but it put them in Category E which is
18 supposed to be for people who are in the vicinity of the
19 person, the installer.

20 MR. McMILLAN: But, Your Honor, my objection is that
21 he has not gotten the witness to agree that he made a mistake
22 or improperly classified --

23 THE COURT: Right.

24 MR. McMILLAN: -- any of the exposure data. He's
25 just saying well, hypothetically, if someone else got confused

Lees - Cross/Rasmussen

150

1 when they filled out a PIQ and they put themselves in the wrong
2 category without presenting any evidence of any individual
3 person who was confused, filled out a PIQ as a hod carrier and
4 said they were in the area or any -- or laid any predicate
5 foundation for that line of questioning.

6 THE COURT: Well, what the witness has said is, he
7 doesn't know what the PIQ said.

8 MR. RASMUSSEN: Correct.

9 THE COURT: And his interpretation of this data is
10 that the helpers and hod carriers belong in Category C. And
11 you've pointed out that there is significant differences
12 between the exposure levels from somebody who's spraying and
13 somebody who's standing next to the sprayer. So, your
14 challenge with respect to the information is of record as to
15 why somebody who's there, and somebody who's right next to
16 there, should be included in the same category when the
17 exposure data is very different.

18 You now want to pick that person up and put it into
19 an entirely different category. But, this witness has not
20 agreed that that is an appropriate category. From this
21 witness' point of view, that -- this category makes sense. The
22 witness has not yet agreed with you that these hod carrier
23 helpers belong in Category E. So, I believe you have not laid
24 the foundation to do this math through this witness.

25 MR. RASMUSSEN: Let me then try to lay that

1 foundation.

2 THE COURT: Okay.

3 Q So, Dr. Lees -- well, let's -- if helpers, when filling
4 out the PIQs, put themselves into Category E, that might've
5 happened correct?

6 MR. McMILLAN: Objection. The witness has already
7 testified that he has no idea how any of the people filled out
8 these --

9 MR. RASMUSSEN: Okay. He doesn't know.

10 Q But, let's assume, assume, that any of the hod carriers or
11 helpers put themselves in Category E, okay? You don't know one
12 way or the other, but it could've happened.

13 A Again, I don't know how any individual would've classified
14 himself.

15 Q Right. But, if -- we don't know, but if one of these
16 thousands of people who was a helper read the instructions and
17 said -- and he actually moved scaffolding and he said, well, I
18 moved scaffolding. I didn't personally install asbestos. So,
19 he put down -- he checked Category E, in the vicinity of
20 somebody installing asbestos, okay? Assume that happened.

21 A Okay.

22 Q Then it wouldn't be fair to compare your exposure levels
23 that you calculate in your Category E with the claimants who
24 actually put themselves in Category E unless you took the
25 exposures of hod carriers and helpers and moved them into

1 Category E.

2 MR. McMILLAN: I object to the form of the question,
3 Your Honor. He's asking a hypothetical where he says if
4 someone else were to make a mistake or misinterpret something,
5 then it would mean that your categories are somehow misleading.
6 I just don't think that's an appropriate question.

7 THE COURT: No. There's nothing about somebody else
8 making a mistake in that question. But, nonetheless, your
9 objection is sustained because the question is would it be
10 fair? This witness isn't judging fair or not fair. He's
11 making calculations. The objection's sustained. You can
12 rephrase the question.

13 MR. RASMUSSEN: I'll rephrase the question.
14 Q Would it be proper -- scientifically proper, Dr. Lees, to
15 use your exposure levels as you calculated them with the hod
16 carriers in Category C, but not in Category E, would it be
17 scientifically proper to then compare the exposures for
18 Category C with the people who actually marked Category E when
19 they filled out the PIQ?

20 MR. McMILLAN: Objection, Your Honor. Dr. Lees'
21 analysis has nothing to do with how anyone fills out a PIQ.
22 It's about how he categorizes exposure information from the
23 historic studies that he has, and that it simply has no bearing
24 on what he's done, how anyone may have thought or may have
25 filled out a PIQ. And that's what he says.

1 MR. RASMUSSEN: Your Honor, I think it's proper for
2 him to explain how his data can properly be used and how it
3 can't properly be used in this case where he is the
4 foundational witness for the person who's about to do just this
5 thing.

6 THE COURT: I think the issue, though, is one for a
7 different witness because he's calculated how the information
8 is being used and in what categories. I think the proper
9 person to ask is the person who applies those categories to the
10 PIQs because that's where the issue's going to arise. The
11 doctor has simply said this is how I did it. But, he has not
12 used the PIQs as the foundation for his evidence. He's used
13 historical studies. So, the fact that somebody may have
14 categorized himself or herself a different way than the doctor
15 did is, at this point in time, not material to the way he did
16 this study, but it may be very well material to how somebody
17 else has used the study.

18 MR. McMILLAN: That's exactly right, Your Honor.

19 MR. RASMUSSEN: And, Your Honor, when I asked
20 actually this -- Dr. Anderson on her deposition, she said,
21 "Well, go ask Dr. Lees." So, now Dr. Lees is here, so I'm
22 asking Dr. Lees.

23 THE COURT: Well, Dr. Anderson isn't the lawyer who
24 makes the decisions about where the relevant information comes
25 from. So, I think it's Dr. Anderson who's going to be on the

Lees - Cross/Rasmussen

154

1 hook if she's the one who applied the information, not this
2 witness.

3 MR. RASMUSSEN: Okay.

4 THE COURT: But, I'm still confused, and I apologize
5 for this. I thought the objection went back to the other
6 exhibit where you were attempting to take a look at the
7 excluded factor, but -- and I want to make sure I understand as
8 I was a little taken aback by what you were doing earlier
9 anyway. So, if we could, just so I understand and don't get
10 lost on this exhibit, please, if we could go back to Exhibit
11 3005. I thought what you were asking this witness to do was to
12 assume that the investigators -- .6 was going to be factored
13 into Category E, and that that would, according to the numbers
14 that you were changing on Exhibit, I thought, 532. If we could
15 go back to Exhibit 532, please, the one that Mr. Rasmussen was
16 marking up.

17 MR. RASMUSSEN: Correct.

18 THE COURT: Oh, it's on the ELMO.

19 MR. McMILLAN: That's right. I put it on the ELMO.

20 THE COURT: I thought your change from the .023 to
21 the .259 was based on the fact that you had done some math
22 calculation that averaged into the .023, the .6, and the other
23 numbers if there were any others.

24 MR. RASMUSSEN: No, no. Just those two.

25 THE COURT: Okay. Those two numbers. But, I am

Lees - Cross/Rasmussen

155

1 still confused as to why the .6 is coming into Category E when
2 this report indicates that there was only one helper, and he's
3 already factored into Category E, if I understood you
4 correctly, the stage mover, and there are no hod carriers and
5 no other helpers. This report is -- specifies that there are
6 no such other people present at the time. I agree -- I
7 understand that this is an actual measurement. But, I am
8 confused as to why it's going into Category E. I thought the
9 objection was that this witness had not agreed that it belonged
10 in Category E, and that's the piece of foundation that I am
11 missing.

12 MR. RASMUSSEN: Okay. This is --

13 MR. McMILLAN: I do object, Your Honor, that -- you
14 are correct. The witness testified that this industrial
15 hygiene investigator was not appropriately, in any of the
16 categories here, because it was unclear what that investigator
17 was doing. In addition, there is a stage mover here, but what
18 the witness testified was, the stage mover was put in with the
19 sprayers because he was assisting in the spray operations, not
20 that there's some other person in the area yet.

21 THE COURT: Oh, okay. So, I apologize. I was
22 confused as to the testimony then.

23 MR. McMILLAN: So, there's no one who is --

24 THE COURT: There is no one in Category E. And the
25 issue, I think, is the foundation for changing the data to get

Lees - Cross/Rasmussen

156

1 to where you want the data to be through this witness in
2 Category E. I need the foundation, please.

3 Q Dr. Lees, is it true that there is no one in your Category
4 E that you calculated on Table 3?

5 A I'm sorry. In --

6 MR. McMILLAN: Objection. That misstates the table.

7 THE COURT: Well, I think I did that. I apologize if
8 I did that. I thought there was a .028 from this table, and
9 that is this one, two, three, four, fifth line down.

10 MR. RASMUSSEN: Correct.

11 THE COURT: Okay. I apologize. I believe that was
12 me. I'm sorry.

13 MR. RASMUSSEN: Okay.

14 MR. McMILLAN: Your Honor, the table -- his Table 3
15 shows helpers from different studies, but it is correct that
16 from this study there are no helpers. I mean, I'm sorry. Not
17 helpers. No one in the area. There are people in the area
18 from the other studies.

19 THE COURT: Okay. If we could -- please, could we
20 just ask the witness to explain and lay the foundation for what
21 is in Category E from this study, and whether or not he agrees
22 that any changes would be appropriate so that I am back on the
23 same page as everybody else?

24 MR. RASMUSSEN: All right. So, let's go back to the
25 study itself which is three thousand and --

Lees - Cross/Rasmussen

157

1 THE COURT: Five.

2 MR. RASMUSSEN: -- and five.

3 UNIDENTIFIED SPEAKER: Take off the ELMO.

4 THE COURT: I'm sorry, Dr. Lees. I got off on a
5 sidetrack and I apologize for this, but I'm confused.

6 THE WITNESS: My head's spinning, too.

7 MR. RASMUSSEN: So, we go back to the underlying
8 study, is one of the three studies, Your Honor, that was used.
9 And we go to Table 1 on Page 2. And those are the exposures
10 that were -- that Dr. Lees carried over into his Table 3 from
11 522. All except one which is the one we've been talking about,
12 the investigator, B.Z. All the others got carried over.

13 THE COURT: Okay.

14 Q Is that right, Dr. Lees?

15 A Yes, I believe so.

16 Q Okay. And even though this particular study might not
17 have had a hod carrier, you are using this study to get a value
18 for average exposures to be used across the board in Category E
19 for jobs and workers that could've been and -- could've been
20 hod carriers, right?

21 MR. McMILLAN: Objection. This isn't laying the
22 foundation for what he -- what you asked him to lay a
23 foundation for about the investigator.

24 MR. RASMUSSEN: Well, we've laid the foundation.
25 We've established what he included and what he didn't include.

1 And --

2 THE COURT: What I'm -- what I was confused about was
3 whether or not this witness agreed that this investigator at
4 the .6 belonged in Category E so that the math calculation that
5 changed that you want the witness to acknowledge is appropriate
6 through this witness. I haven't heard the foundation for it,
7 and that's what I'm trying to get to. I thought there was an
8 objection to foundation and I am trying to rule on it because
9 if the witness acknowledged that I missed it.

10 MR. RASMUSSEN: Okay.

11 THE COURT: So, all I'm asking is, could you please
12 re-ask the witness so that I can rule on the objection?

13 Q Dr. Lees, the individual who took the study said that the
14 investigator's breathing zone measurement was, or might be, to
15 be exact, might be equivalent to a construction worker in the
16 area, and you have no reason to doubt that conclusion, do you?

17 MR. McMILLAN: I would object to that. It
18 mischaracterizes this document and it doesn't ask the witness
19 the simple question that you asked is, does he agree that the
20 investigator should be included as an E or not.

21 THE COURT: Overruled. This is -- this witness is an
22 expert. He's entitled to rely on this type of data. He can
23 certainly explain whether he does or doesn't agree or disagree
24 or what he agrees with. I just want the foundation. Please
25 proceed. Dr. Lees, you can answer this question if you have an

1 answer to this question.

2 THE WITNESS: Could you restate it? Boy, my head is
3 really spinning at this point.

4 MR. RASMUSSEN: Can you repeat the question?

5 THE COURT: The question was whether or not you agree
6 that the person who took the study said that the
7 investigator -- that the air sample might be equivalent to the
8 exposure which might be experienced by a construction worker in
9 the area, and do you have any reason to disagree with that
10 analysis?

11 THE WITNESS: That's -- basically what you've done is
12 read what is in the report.

13 Q So, you have no reason to disagree with my question?

14 A No. I agree with you that that's what he said --

15 Q That's what he said. And so, my question to you --

16 A -- but I disagree with you, however, in that it was -- my
17 point here is that other construction trades not associated
18 with the application of a fireproofer or other construction
19 workers, would not be in the work area other than maybe, maybe
20 passing through. Because when spray fireproofing was being
21 applied, as I said, everybody get out of the way so that -- my
22 point here is that there were no other construction workers not
23 associated with the spraying that would be present that this
24 number would represent.

25 Q And my point, Dr. Lees, or my question, is that that

1 measurement taken by that investigator is just as
2 representative of what a hod carrier or helper would've been
3 exposed to as the actual measurement that you included which
4 was from a stage mover between one and 50 feet.

5 A Again, the investigator was not involved in any work
6 activities.

7 Q They didn't have to be if -- you just had to be within one
8 to 50 feet of the spraying to be representative of a hod
9 carrier or helper that was within one to 50 feet of the
10 spraying.

11 A No, no, no, no.

12 MR. McMILLAN: I'm going to object that that
13 mischaracterizes the witness' testimony.

14 THE COURT: It hasn't mischaracterized the witness'
15 testimony. The witness is being very clear. In his view, when
16 somebody was spraying fireproofing there wouldn't have been
17 anybody else in the area, and he doesn't know where this
18 investigator was at the time that the spray was being taken --
19 the spraying was being done. But, it doesn't say that it was
20 within one to 50 feet. Do I understand your testimony, Dr.
21 Lees?

22 THE WITNESS: I think you said it better than I have.

23 THE COURT: Okay. So, I don't -- go ahead.

24 Q Well, there was, indeed, one person within -- one person
25 who was not a sprayer that was within the area near the

1 spraying because you included that person.

2 A Yes. And he was an active member of this application
3 process.

4 Q And what was important for your purposes for your study
5 was to get a measurement of what somebody in that area would
6 breathe in in terms of asbestos, right? Where the exposure
7 would be?

8 A Again, I'm not sure I'm following your question.

9 Q The purpose of getting your exposure measurements is to
10 have some number to apply to people, not just the people in
11 this study, but all people who filed claims who are helpers or
12 hod carriers and who marked themselves into Category E. That's
13 the whole purpose of this, isn't it?

14 A You said they're in Category E. I don't think I'd agree
15 with you.

16 Q Assuming they were. You don't know.

17 A Again, in my analysis, the helper or the stage mover or
18 the hod carrier, whatever they call themselves, is the person who
19 was working with the guy who held the spray gun. This was part
20 of a two-member team that applied the fireproofing. That is
21 the reason why I put both of these job titles in Category C.

22 Q Okay.

23 MR. RASMUSSEN: And so, Your Honor, just two more
24 questions on this line and then I'll move on.

25 Q And maybe these questions are also better for Dr.

Lees - Cross/Rasmussen

162

1 Anderson, but since you did the calculations I think it may, in
2 some ways, be easier for you. If we, indeed -- and let's go
3 back to Table 3 of Exhibit 522 -- if we, indeed, moved -- if,
4 indeed, you had put the hod carrier helpers into Category C
5 that would have significantly increased the exposure that --
6 the average exposure that you would have recorded for Category
7 E, isn't that right?

8 A They are already in C.

9 Q Excuse me, for E. I meant E. If you had moved the hod
10 carrier helper, PCMs' exposures, from Category C to Category E
11 because you wanted to be conservative and because you didn't
12 know how people actually did classify themselves, so to be
13 conservative you moved them into E, that would have
14 significantly increased the average exposure for Category E,
15 right?

16 MR. McMILLAN: Objection, Your Honor. The witness
17 just testified that it would be inappropriate to move them.
18 That they were appropriately in Category C.

19 THE COURT: No. Actually, I think the witness
20 testified that he doesn't know how people classified them.
21 That he classified on this exhibit, 532, he made his own
22 classifications. He did not classify according to how people
23 did it on the PIQs. I think we're mixing the exhibits up at
24 this point. Would you like to restate the question to make
25 sure we're clear on exhibits?

Lees - Cross/Rasmussen

163

1 MR. RASMUSSEN: Yes.

2 Q Now, the purpose of your -- you gave the average exposures
3 in Category E in Table 4 -- well, you put them into Table 4A,
4 correct?

5 THE COURT: Wait. What exhibit are we looking at?

6 MR. RASMUSSEN: We're looking at 522.

7 THE COURT: 532. His report?

8 MR. RASMUSSEN: 532, Table 3, which is -- has the
9 underlying data that he then averages and puts into Table 4A
10 which is the summary exhibit, correct Dr. Lees?

11 A Yes. I think you have that right.

12 Q And the summary exhibit is then what goes to Dr. Anderson,
13 correct? What you gave to Dr. Anderson?

14 A Well, that goes -- right, into the job exposure matrix.

15 Q Right. And your exposures that you are reporting, your
16 exposure measurements, are supposed to align themselves with
17 the PIQ categories so that they can be compared to actual
18 claimants who have put themselves in one of the PIQ categories,
19 isn't that right?

20 MR. McMILLAN: I'm going to object again, Your Honor,
21 that what he said is, he was not doing -- he wasn't doing
22 anything relating to what any PIQ claimants were doing or
23 looking at how they were classifying themselves. He was
24 attempting to classify the industrial hygiene data categories.

25 THE COURT: This question goes to whether he knows

Lees - Cross/Rasmussen

164

1 what the ultimate use was of being made of the data that he was
2 calculating, and I think that's a proper question. That's
3 overruled.

4 A I do not know how PIQ responses factor into the ultimate
5 analysis.

6 Q Okay. But, it would be a mismatch if you had put hod
7 carriers and helpers in Category C, and actual claimants had
8 put them into Category E -- put themselves in Category E, isn't
9 that right? It would be a mismatch.

10 MR. McMILLAN: Objection. It's the same objection,
11 Your Honor. He's asking a hypothetical of the witness who said
12 15 times he doesn't know how people feel about the --

13 THE COURT: That's right. That's the use question
14 that you need to ask, I think, of somebody who may have used
15 his data in some other fashion.

16 MR. RASMUSSEN: Okay. So, I will, then -- I will
17 withdraw for the evening, Your Honor. It's after six and we'll
18 continue tomorrow, but I will not come back to this issue.
19 We'll leave for Dr. Anderson.

20 THE COURT: You're not finished --

21 MR. RASMUSSEN: Oh, no.

22 THE COURT: -- with this witness?

23 MR. RASMUSSEN: No.

24 THE COURT: How much longer do you have?

25 MR. RASMUSSEN: Half an hour, 45 minutes.

1 MR. BERNICK: Your Honor, they gave us an estimate
2 that the totality of the cross examination would be an hour and
3 a half. We have Dr. Moolgavkar who's prepared to go first
4 thing tomorrow morning. This whole schedule was hammered out.
5 Now, I'd add this is exactly what happened with Mr. Rasmussen
6 and Dr. Rodricks. We've just got to get better predictability
7 for how long these cross examinations are going to go because
8 it's going to screw up the whole schedule.

9 MR. RASMUSSEN: My questions, Your Honor, if I had
10 simply asked the questions and with no objections and no
11 colloquy would've been --

12 THE COURT: They were objectionable, Mr. Rasmussen.

13 MR. RASMUSSEN: I know.

14 THE COURT: Ask questions that aren't objectionable
15 and then we won't have to go through the arguments.

16 MR. RASMUSSEN: So, Your Honor, if you give me time
17 tonight I'll promise to go back and make unobjectionable
18 questions for tomorrow.

19 THE COURT: Are you available tomorrow, Dr. Lees?

20 THE WITNESS: Well, actually, my younger daughter is
21 returning to college first thing tomorrow morning and I was
22 actually hoping to get home tonight. But, if necessary, I can
23 make myself available. She won't miss me.

24 MR. BERNICK: I, first of all, want to know if Your
25 Honor is prepared to stay because Mr. Rasmussen can go -- he's

Lees - Cross/Rasmussen

166

1 got one question left -- one area left. I suspect it's exactly
2 the same area that was covered by Mr. Wehner, which is
3 averages, and maybe we can get Dr. Lees done. But, the first
4 priority is that I know we don't want to impose on the Court
5 personnel. So, if we can't do it, we can't do it.

6 THE COURT: Gentleman, you know, I agreed to let you
7 folks start late today on your assertion that we would be
8 finished on time and I wouldn't have to keep my staff late.
9 Now, frankly, this is unconscionable on all of your parts. It
10 really is unconscionable on all of your parts. And to keep a
11 witness overnight under these circumstances is really uncalled
12 for. I do not expect to have this happen again. I will impose
13 sanctions if it happens again. This is uncalled for and I
14 don't expect either the Court staff or witnesses to be treated
15 like this again by any of you. Better yet, I'll tell you what
16 the sanctions will be, none of you will get compensated for any
17 of your trial time beyond five o'clock on any day that this
18 happens again. Now, that's what it will be. So, you plan your
19 days better.

20 Dr. Lees, if we take a few minute recess and I find
21 out whether if I make arrangements to get my staff home
22 tonight, would you be able to stay longer tonight to get this
23 finished?

24 THE WITNESS: Certainly.

25 THE COURT: All right. We'll take a five-minute

Lees - Cross/Rasmussen

167

1 recess. Jan, can you come and talk to me while I see if I can
2 get you home?

3 (Recess)

4 THE COURT: Please be seated. All right. Gentleman,
5 we are going to stay until seven o'clock, not one second later.
6 You've got that long.

7 MR. RASMUSSEN: Okay. Your Honor, I do apologize.
8 This is taking longer than I wanted, but I do have an
9 obligation to my client as well to --

10 THE COURT: You've got until seven. Let's go.

11 MR. RASMUSSEN: Okay.

12 Q I've deleted a lot of questions, so we're not going to ask
13 you anything more about the first topic which is the way you
14 calculated your averages. Now, I do want to ask you, though,
15 about whether you calculated the right averages or not. You
16 didn't measure the average exposure of people who actually got
17 asbestos-related diseases, did you?

18 A I calculated the average of all measurements in the
19 relevant categories.

20 Q You calculated the average of all people exposed to
21 asbestos, correct?

22 A These were exposure measurements, yes --

23 Q Right.

24 A -- without respect to, you know, who knows whether they
25 ultimately were diseased or not.

1 Q But, as an industrial hygienist you know that the higher
2 the dosage -- there's a dose response curve, isn't there?

3 A There's a dose response curve.

4 Q And the higher the dosage above a certain minimum the more
5 likely that the exposed person will get an asbestos-related
6 disease?

7 A Well, but that has -- the -- what I calculated, that is
8 the average concentration, is only one very small part of the
9 dose calculation. The relationship to disease is not with
10 average exposure concentration. It's the average exposure
11 concentration times the frequency times the, you know, how
12 often they did it, times the duration of that exposure. So,
13 you could have, for instance, in my old chromium studies, we
14 had two workers that were in the same work category and had the
15 same -- and were assigned the same chromium concentration --
16 exposure concentration -- but, literally in that study, there
17 were people that worked one day and people that worked 35
18 years.

19 And so, they're -- while they're -- the average
20 exposure concentration was the same, their dose -- their -- I'm
21 blanking on the word -- accumulative exposure was far
22 different, and it's that accumulative exposure that is related
23 to the risk of disease, not the average exposure per se.
24 That's only one small part of it.

25 Q Right. Is it true, though, Dr. Lees, that you are

Lees - Cross/Rasmussen

169

1 assuming, the purposes of your analysis, that the average
2 exposure of all the people who were exposed to asbestos is the
3 same as the average exposure of all those people who get
4 asbestos-related diseases?

5 THE COURT: I'm sorry. Would you say that again?

6 MR. RASMUSSEN: Yes.

7 Q Is it true, Dr. Lees, that you are assuming, for purposes
8 of your analysis, that the average exposure for all those
9 people who were exposed to asbestos -- in other words, the
10 average as you calculated, are the same as the average
11 exposures of all those people who got asbestos-related
12 diseases?

13 MR. McMILLAN: I'm going to object that there's no
14 foundation that Dr. Lees has engaged in any determination of
15 who got disease, what their average exposure was, or what the
16 distribution of exposures among people who actually have
17 diseases.

18 THE COURT: Well, the witness can answer that
19 question. If he's not involved in it he can answer that.
20 Overruled.

21 A The calculations that I've made are of the average
22 exposure associated with a given product and set of exposure,
23 job -- essentially job category.

24 Q Okay. But, as an industrial hygienist, isn't it likely --
25 actually likely -- that the direct -- given a direct dose

Lees - Cross/Rasmussen

170

1 response curve, that the people who get the higher exposures to
2 asbestos are more likely to be the people who get sick from
3 asbestos-related diseases?

4 MR. McMILLAN: I'm going to object. He's now asking
5 him epidemiology questions about what he would expect from a
6 dose response curve, not about his categorization of existing
7 exposure data.

8 THE COURT: This seems to be going outside his
9 report.

10 MR. RASMUSSEN: Okay. I'll move on, then, to the
11 last topic.

12 Q You did testify on direct that although these categories
13 had wide variation in the number of exposures and, indeed, the
14 number of job types in them, that over time, you testified,
15 that would -- they should cumulatively move to the mean, right?
16 Converge on the mean?

17 A What I said is that for an individual, which there would
18 certainly be day to day variability in an individual's
19 exposure, that over time that person's -- would -- the
20 variability would balance itself out, and so that the average
21 exposure will be the best representation of the exposure. And
22 in addition, the individual's average over time would approach
23 the population average, that is, the average exposure of all
24 other people doing, you know, working with the same type of
25 product and the same type of jobs.

Lees - Cross/Rasmussen

171

1 Q So, let's look at Table 3 again of your Exhibit 522 --
2 excuse me -- 532. Is it your testimony, then, that -- well,
3 first of all, the hod carrier helpers, if you have one column
4 for Exhibit C, they will have their own average exposure,
5 correct?

6 A The average exposure was calculated. That's correct.

7 Q And that's a different average exposure than the sprayers,
8 right?

9 A Yes. I as remember, it's different, yes.

10 Q So, is it your testimony that over time the sprayer's
11 average -- is it over time -- so, over time, will the hod
12 carriers' average move -- accumulatively move to the mean of
13 the hod carrier helpers' average or to the mean of the
14 sprayer's average?

15 A To the mean of the combined job title's category.

16 Q But, then, only move to the mean of the combined job
17 titles if there -- if a sprayer or a hod carrier could randomly
18 exchange jobs every time he or she came to the job site, isn't
19 that right?

20 A No.

21 Q It would have to be -- for them to average for the one
22 category sprayer over time, to have an average that will move
23 to the mean of a combined sprayer/hod carrier average, people
24 are going to have to do those jobs interchangeably, aren't
25 they?

1 A Well, the mean -- again, what I'm talking about here is
2 the combined mean. And, yes, they are -- in this case they may
3 be different, okay? And so, within the sprayer, it will
4 converge on the population mean, and within the hod carrier
5 helper, it may converge on the -- it will on the population
6 mean of that job title. And over time, the combine will
7 converge on a combined average.

8 Q Well, that's the part, I understand, that, by the hod
9 carrier helpers, because they're doing the same job, but
10 converge cumulatively on the average for them, and I understand
11 why the sprayers, over time, converge on an average for
12 sprayers, but I don't understand why a sprayer, somehow over
13 time is somehow going to get averaged in with a hod carrier.
14 Do you have an explanation for why that happens?

15 A I guess, you know, maybe I slightly misstated it. Within
16 these two, they will converge to an average. And what I've
17 simply done is presented the average of these two averages.

18 Q Why will a sprayer converge the average that is made up of
19 the sprayers and the hod carriers together? Why won't the
20 sprayer --

21 A No, I -- if I said that I didn't mean it. The sprayer
22 will converge on the average of the sprayers. The hod carriers
23 will converge on the average of the hod carriers.

24 Q Right. But, yet, when you reported your average exposures
25 for C, you reported a combined average.

Lees - Redirect/McMillan

173

1 A That's correct.

2 Q And no one's going to converge on that combined average
3 that you reported, isn't that right?

4 A That represents -- these two averages together represent
5 the population average for these two job titles.

6 Q Right. But, over time, nobody's going to converge there
7 because the sprayers aren't going to converge there. They're
8 going to go to the sprayer average --

9 A They are separate. That is correct.

10 Q -- which is different. And the hod carriers are going to
11 converge on the hod carrier average which is different. So,
12 none of them are going to converge on the average you reported
13 to Dr. Anderson.

14 A As I said, the convergences is within job title.

15 Q Right.

16 MR. RASMUSSEN: I have no further questions.

17 REDIRECT EXAMINATION

18 BY MR. MCMILLAN:

19 Q Good afternoon, Dr. Lees. Just briefly, I would like to
20 go back to a couple of points. One is, I know that you were
21 shown on several occasions, Table 3 from one of the appendices
22 to your July report which, I believe, is ACC/FCR-532. And, Dr.
23 Lees, I believe you were asked about whether it was appropriate
24 to group the sprayers and the hod carriers or helpers together.
25 Do you recall that?

Lees - Redirect/McMillan

174

1 A Yes.

2 Q And what is your belief on that subject?

3 A I believe that they are part of the combined -- they are
4 part of the spray application process.

5 Q Now, I want to show you one study that was shown to you by
6 Mr. Rasmussen that is ACC/FCR-2076. And he showed you a
7 portion of a quote about the sprayers and helpers. I want to
8 show you another portion of it. You'll see here that what --

9 A I'm sorry. Which study does this --

10 Q This is ACC/FCR-2076 which probably doesn't mean anything
11 to you.

12 A Not a thing.

13 Q Which is the Bank of California centered in Seattle. So,
14 it's a --

15 A Okay.

16 Q And what Mr. Rasmussen showed you was the portion here
17 that said, "The helper's actions involved moving hoses, mobile
18 scaffolds, and cleaning overspray from the floor." But, I
19 would like you -- to direct you to the two sentences above that
20 that say, "The next set of samples was taken on the ninth
21 floor. Here, two sprayers, along with their helpers, were
22 engaged in spraying and -- of spraying the outer wall
23 structural steel work. The Layout Number 2 shows their
24 positions in relationship to the wind." Now, what does that
25 first part indicate to you about whether or not it would be

1 appropriate to consider the sprayer and the helper as having
2 the same category of exposure?

3 A Well, the second sentence, you know, says that they are
4 doing this job together.

5 Q So, what does that mean to you as an industrial hygienist
6 about whether or not it's appropriate to group them for
7 exposure purposes?

8 A That they have similar enough exposures to group them
9 together.

10 Q I want to show you -- now, you'll notice here that it
11 says, "Layout Number 2 shows their positions in relationship to
12 the wind." So, I'd like to show you Layout 2 which is a page
13 later on.

14 A You're making me nauseous here.

15 (Laughter)

16 Q Sorry. Now, do you see here where you have sprayer/helper
17 as Team C, and then down below you have sprayer/helper as Team
18 A? What does this indicate to you about the proximity of the
19 helpers to the sprayers during the sprayer operation?

20 A They were attached at the hip.

21 Q And what does that tell you about whether or not it's
22 appropriate to group them in terms of having similar exposure?

23 A Again, that they would have similar exposures.

24 Q Now, looking -- before I leave the hod carriers and
25 helpers, you were asked at the end by Mr. Rasmussen a few

Lees - Redirect/McMillan

176

1 questions about approaching the mean exposure for the hod
2 carriers, helpers, and the sprayers. Now, in your view, given
3 what we just talked about, about the proximity of them, the
4 operations, and your review of the exposure data, did you have
5 a reason why you originally grouped these two groups together
6 into Category C?

7 A Yes. Well, as I've explained, I view them as applicators,
8 you know, an application team that is applying this material,
9 and in addition, they have similar exposures.

10 Q So, if these two people are part of the same application
11 team with similar exposures, do you believe that their
12 exposures are similar enough that they should be grouped
13 together?

14 A Well, I did group them together, yes.

15 Q And do you still believe that that was an appropriate
16 grouping?

17 A Yes.

18 Q Dr. Lees, I'm going to show you a page -- and I apologize.
19 I don't have the first page with me -- that is from -- this is
20 from ACC/FCR-2084. Do you recall when you were asked about
21 this on cross?

22 A Yes.

23 Q And specifically, you were asked a number of questions
24 about four samples near the bottom -- or, I guess, in the
25 middle of D:site that were from the Hilton Towers study in San

Lees - Redirect/McMillan

177

1 Francisco. Do you recall that?

2 A Yes.

3 Q How did you use those four data points?

4 A Well, these -- and again, the actual work was done a year
5 ago so that my specific recollections are not very specific.

6 But, these would be -- were used as representative of site
7 exposures.

8 Q And do you believe that that was an appropriate use?

9 A Well, there certainly indicate where the investigator
10 thought the spray was going so that that would represent
11 somebody's exposures, yes.

12 Q And so, do you think it's appropriate in the absence of
13 other site data to use data that may have been offsite, but
14 that the investigator thought was indicative of where the spray
15 might be going?

16 A It is literally the only data that were available, and so,
17 therefore, it's the best estimate -- excuse me -- estimator
18 that I had available to me.

19 Q All right. Dr. Lees, you were shown ACC/FCR-2082, and I
20 think you have it in your binder and I'd actually like to have
21 you take a look at it with me, please.

22 A What was that number again?

23 Q 2082.

24 (Pause)

25 Q Have you found it?

1 A I found it, yes.

2 Q Now, was this a study that you reviewed and considered
3 when you were doing your analysis in this case?

4 A I don't remember it, no.

5 Q Okay. Well, I'd like you to flip to the last page which
6 is Bates Number WRGBOS6 -- 060666.

7 A Yes.

8 Q Now, you testified on direct that you have a number of
9 data quality criteria that you applied to all of the studies
10 that you reviewed. Do you recall that?

11 A That's correct.

12 Q And I'm not going to try to put you on the spot and have
13 you apply them all right now, but I would ask you to look and
14 see if the data that's reported here under the asbestos fiber
15 title about two-thirds of the way down, do you see anything
16 there that would indicate the time of the sample or how long
17 the samples were collected for?

18 A It's not indicated.

19 Q Under asbestos fiber analysis, do you see anything that
20 would indicate the analytical method that was used to analyze
21 those samples?

22 MR. WEHNER: Objection. Leading.

23 THE COURT: Sustained.

24 Q Does this describe anything relating to the analytical
25 method?

Lees - Redirect/McMillan

179

1 A No, it does not.

2 Q What about the -- whether it's an eight-hour time waited
3 average?

4 A There's no indication of the time of the sample.

5 Q So, based on this initial review, do you have any view as
6 to whether or not you likely would have found that this study
7 passed your data quality criteria such that it could've been
8 used in your analysis?

9 MR. WEHNER: Objection. Leading.

10 MR. McMILLAN: I'm asking him whether or not he
11 would've done that, Your Honor.

12 THE COURT: Based on his initial review, does he have
13 a view? It is leading, but it's also a foundational question
14 and I think we're beyond that so, overruled. You can answer
15 that. I'm sorry.

16 THE WITNESS: Oh, right. I was forgetting who you
17 were overruling there.

18 A Just looking at this one document right here, I really --
19 primarily because I don't know -- it's not indicated here, the
20 method, the rules by which these samples were analyzed, I would
21 probably not include this study.

22 Q Dr. Lees, you were asked at the beginning by Mr. Wehner
23 about the amount of data that you had for Monokote III that was
24 then used for other products in the chrysotile and vermiculite
25 mixed wet and sprayed, as well as the other chrysotile factors?

1 A That's correct.

2 Q Why did you feel that it was appropriate to use the
3 Monokote III data as a proxy for exposures to all of the other
4 products that contained added chrysotile?

5 A Well, the products included in that category are the
6 Monokote III fireproofing and then 25 or 30 different
7 decorative plasters. They are similar in composition in terms
8 of containing vermiculite, and within a, you know, a range,
9 similar concentrations of asbestos. The data I had represented
10 were all from all -- sixty-some samples were from the
11 application of the fireproofing. As I stated earlier, I had no
12 direct data from the application of the decorative plasters.

13 On the other hand, what I know from my investigation
14 of how these materials are used, that the application of the
15 fireproofing as I described earlier using, you know, it's a
16 fairly high pressure and this was a high production operation
17 where they would put on, you know, on the order, a bag a
18 minute. So, 60 bags an hour were applied.

19 On the other hand, the application of these
20 decorative plasters was a very limited smaller part of a day.
21 Low pressure, very low volumes of materials that were applied
22 so that in my professional evaluation of this, the exposures
23 that would be associated with all these 25 or 30 decorative
24 plasters, would actually be less than those that are associated
25 with the Monokote III.

Lees - Recross/Rasmussen

181

1 And so, therefore, you know, by assigning the
2 Monokote III exposures to all of these other materials, the
3 decorative plasters, I've actually, I think, substantially
4 overestimated what the actual exposures were. I just don't
5 have the data, so it's -- that whole category is, for many of
6 the products, a substantial overestimation of the exposure.

7 MR. McMILLAN: Can I have one moment, Your Honor?

8 (Pause)

9 Q When you had spoken earlier about the worst case scenario
10 or the variability, were you talking specifically about the
11 Monokote III data that we just addressed and using it for other
12 products or was there another point that you were trying to
13 make?

14 A What are you referring to that I said? I'm confused.

15 Q I think we've covered it now, Dr. Lees.

16 MR. McMILLAN: With that, I have no further
17 questions.

18 THE COURT: Okay. Mr. Wehner?

19 MR. WEHNER: No recross for the ACC.

20 MR. RASMUSSEN: One question.

21 THE COURT: Mr. Rasmussen.

22 RECROSS EXAMINATION

23 BY MR. RASMUSSEN:

24 Q Dr. Lees, on redirect you testified that you thought it
25 was appropriate to include hod carriers and sprayers together

Lees - Recross/Rasmussen

182

1 for the purposes of computing an average for your Category C
2 because they were, "Joined at the hip" and had "Similar
3 exposure levels," isn't that right?

4 A That's correct.

5 Q Let's look at your Table 3 and see how similar those
6 exposures were. In fact, Dr. Lees, the average is -- that you
7 calculated for the sprayers, are significantly higher than the
8 averages you calculated for the hod carrier; 1.2 versus 3.2,
9 .11 versus 2.2, .272 versus 1.85. That one's a little higher
10 on the other side, but all the others -- 1.36 versus .305.
11 They're significantly higher. Do you have an explanation for
12 why that is?

13 A I would -- don't agree with your characterization in that
14 if you look at them individually, the first -- the 3.2 compared
15 to the 1. -- or the 1.2, that's a factor of two and a half. As
16 far as exposures go, that's not a very big difference. The
17 next one, that is a more substantial difference. The next one
18 is maybe, again, maybe a difference of Factor 6 which is not
19 that huge, if you will. And the final one is only a Factor 2
20 difference. So, that, you know, there's a range in there, and
21 I don't know what the average is, but the difference in the
22 exposures might be a factor of three on average or something
23 like that which is not a really substantial difference in
24 exposure.

25 MR. RASMUSSEN: No further questions.

Lees - Recross/Rasmussen

183

1 MR. McMILLAN: No further questions, Your Honor.

2 THE COURT: You're excused, Dr. Lees. Thank you very
3 much.

4 THE WITNESS: Thank you.

5 THE COURT: We're adjourned until nine o'clock
6 tomorrow. We were going to start at eight-thirty, but I
7 understand that the eight-thirty proceeding is off, Ms. Baer?

8 MS. BAER: It's been continued to April 21st.

9 THE COURT: Do you still want to start at
10 eight-thirty?

11 MS. BAER: The Court Call's my biggest problem
12 because --

13 THE COURT: At eight-thirty or at nine?

14 MS. BAER: -- at nine because --

15 THE COURT: Nine. Oh, okay. We'll start at nine
16 o'clock tomorrow, then. We're adjourned until nine.

17 MR. BERNICK: Your Honor, we all really appreciate
18 Your Honor's and your staff's indulgence for our scheduling
19 problem.

20 MR. WEHNER: Yes, Your Honor, very much so.

21 MR. RASMUSSEN: Thank you, Your Honor.

22 UNIDENTIFIED SPEAKER: We appreciate it, as well.
23 Thank you very much.

24 THE COURT: Next time it's cabs on the estate for my
25 staff, not driving them home. Okay. Just so you understand.

Lees - Recross/Rasmussen

184

1 And I'm serious about the attorney fee issue. We're adjourned
2 until nine. Thank you, doctor.

3 * * * * *

C E R T I F I C A T I O N

We, Patricia Repko, Tammy DeRisi, Elaine Howell, and Kathleen Betz, court approved transcribers, certify that the foregoing is a correct transcript from the official electronic sound recording of the proceedings in the above-entitled matter, and to the best of our ability.

/s/ Patricia Repko

PATRICIA REPKO

/s/ Tammy DeRisi

TAMMY DeRISI

/s/ Elaine Howell

ELAINE HOWELL

/s/ Kathleen Betz

DATE: March 27, 2008

KATHLEEN BETZ

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